

PLANNING ACT 2008

**The Morecambe Offshore Windfarm Generation Assets Development Consent Order
Application**

Deadline 5 submission by Spirit Energy Production UK Limited
Response to the Applicant's Deadline 4 Submissions

EN010121
Unique Reference: 20049981

Date	11 March 2025
-------------	---------------

Contents

1.	Introduction	3
2.	Spirit's Position	4
3.	Meetings between Spirit and the Applicant	4
4.	MNZ.....	8
5.	Shipping and Navigation	11
6.	Protective Provisions	11
	APPENDIX A: Minutes of Meeting between Spirit and the Applicant on 18th February 2025.....	12
	APPENDIX B: Agenda of the meeting between Spirit and the Applicant on 18th February 2025.....	13
	APPENDIX C: Transcript of the meeting between Spirit and the Applicant on 18th February 2025.....	14
	APPENDIX D: ORS Safety Report	15

1. **Introduction**

- 1.1 'Spirit Energy' is the trading name used by Spirit Energy Limited and its subsidiaries, including Spirit Energy Production UK Limited, a group which collectively conducts European oil and gas operations.
- 1.2 Eversheds Sutherland (International) Limited are instructed by Spirit Energy (**Spirit**) in relation to the proposed development consent order application (the **Application**) made by Morecambe Offshore Windfarm Ltd (the **Applicant**) for the proposed Morecambe Offshore Windfarm Generation Assets (the **Project** or **Proposed Development**).
- 1.3 Unless otherwise stated in this submission, Spirit adopts the definitions applied in its submission at Deadline 4 [[REP4-069](#)] (**Spirit's D4 Response**)
- 1.4 Spirit's notes the Applicant's submissions at Deadline 4 of the Examination of the Application in relation to Spirit, listed in Table 1. However, these submissions largely sign-posted the Applicant's previous submissions. To the extent that any comment beyond sign-posting was made by the Applicant, Spirit has addressed these concerns in the sections of this submission listed in Table 1.

Table 1

Reference	Submission	Addressed
REP4-029	Combined Examination Progress Tracker and Statement of Commonality (Clean) (Applicant's Examination Tracker)	MNZ: Section 5 Protective provisions: Section 7
REP4-058	Applicant's Comments on Deadline 3 Submissions by Interested Parties (Applicant's D4 Comments)	Protective provisions: Section 7
REP4-059	Written Summary of the Applicant's Oral Submissions - Issue Specific Hearings 2, 3 and 4 (Applicant's ISH2-4 Submissions)	Spirit's Operations: Section 4 Aviation: Section 3
REP4-060	Applicant's Comments to Interested Parties Responses to ExQ1 (Applicant's ExQ1 Comments)	Spirit's Operations: Section 4 Aviation: Section 3

2. **Spirit's Position**

- 2.1 Spirit refers to and maintains the summary of its position detailed at Section 2 of its Deadline 4 submission [[REP4-069](#)].

3. **Meetings between Spirit and the Applicant**

- 3.1 The Applicant and Spirit Energy have met twice since Issue Specific Hearings 2-4 on Thursday 13th February and Monday 18th February 2025 to seek to promote better understanding of their technical analysis, calculations and concerns (the **Meetings**).

- 3.2 Spirit provided the minutes of the meeting on 13th February 2025 at Appendix A of its Deadline 4 submission [[REP4-069](#)]. Spirit has now provided the minutes of the meeting on 18th February 2025 at Appendix A to this submission (the **18/02 Minutes**). Spirit has also provided the agenda for this meeting at Appendix B and the Microsoft Teams transcript at Appendix C. The key concerns arising out of the meetings between Spirit and the Applicant are summarised as follows:

- 3.2.1 The Applicant has not understood or recognised how Spirit operates.
- 3.2.2 The Applicant has failed to address Spirit's safety concerns.
- 3.2.3 The Applicant has not demonstrated how an aviation buffer of 1.5nm is safe.

Spirit has provided further detail on each of these concerns in the remainder of this section.

- 3.3 Following the meeting of the 18th February 2025, Spirit has provided analysis to the Applicant demonstrating why the IMC corridor does not mitigate the consequences of the Proposed Development on the safety of Spirit's operations. Spirit has provided this analysis at paragraphs 3.27-3.30 of this submission for the benefit of the ExA.

Concern 1: The Applicant has not understood or recognised how Spirit Operates.

- 3.4 At the Meetings, the Applicant agreed that the inability for Spirit to complete maintenance work as a result of the Proposed Development would create a backlog that will build up and become unacceptable.
- 3.5 However, the Applicant considers that a floating window of time to complete maintenance would allow this to be mitigated. The Applicant was unable to understand or accept that (i) there are already limitations on flexibility outside of Spirit's control (such as weather, staff availability and working conditions, and helicopter operator constraints) and Spirit's concern is that the further restrictions imposed by the windfarm will make it more difficult to the degree of no longer being possible for Spirit to complete its maintenance work if flights are cancelled or delayed due to restrictions related to the windfarm, and then less flights are available to mitigate the resultant knock-on effects because of those restrictions, and (ii) specialised vendors are needed to support maintenance activities; where the vendor cannot attend the installation due to flight delays or restrictions, the impact is more direct and it may be months before the vendor is available again.

Maintenance

- 3.6 Spirit has explained to the Applicant its safety concerns related to its ability to keep up with scheduled maintenance as a result of the flight restrictions related to the Proposed Development. Spirit has assessed that the flight restrictions imposed by the Proposed Development would cause Spirit to lose 22% of the time available to it to meet the maintenance burden. To support this figure, Spirit has presented the loss of flights that will be caused by aviation restrictions as a consequence of the proximity of the Proposed Development to the Applicant. It has identified a 30% overall impact to NUI flights (44% impact in Winter) which leads to a 22% loss to productive time offshore.

- 3.7 This inhibits Spirit's ability to execute safety critical maintenance and leads to a substantial backlog build up within 1 year of these restrictions. This will expose Spirit to significant risk of regulatory enforcement action for breaches of offshore regulations commensurate with the seriousness of the significant safety impact it would cause to offshore personnel.
- 3.8 The Applicant accepted the figure of 22% excluding the aviation corridor (see paragraphs 3.27-3.30 below for further details on the impact of the IMC Corridor on the figure), but maintained that it considers that Spirit would be able to absorb a maintenance backlog. While the Applicant accepted that Spirit runs a fully optimised maintenance schedule, the Applicant nonetheless insisted that Spirit should be able to find more days and re-optimize if it got more crews, more helicopters, and new operating models - despite Spirit explaining that in addition to resources, it has to manage the composition of teams to ensure appropriate competencies are available within crews for scopes of work, very limited availability of specialist vendors, restrictions on landings at installations, POB at certain NUIs, and of course safe working conditions, weather and other operational constraints.
- 3.9 To be clear, Spirit already operates on an optimised maintenance schedule. While the Applicant has termed the impact of the Proposed Development an 'operational nuisance', this is an operational reality. The model it has used in this examination is based on real operational constraints. There are not enough days in the year to absorb a 22% loss in time available, particularly if working hours are constrained by further flight restrictions due to the proximity of the Proposed Development, and re-arranging flights is not the simple solution that the Applicant is suggesting it is: there are not enough days in the year in terms of personnel, working hours and operational constraints – it is not purely a matter of additional aircrafts to 'create' more flying days.

Spirits operations

- 3.10 Throughout the DCO process, Spirit has undertaken a substantial amount of work to provide information to help the Applicant understand Spirit's operations and the direct impact of the Proposed Development.
- 3.11 Notwithstanding that an aviation buffer of 3.76nm is required for the safety of Spirit's operations, the Applicant has sought to assert that the impact is a minor nuisance and that Spirit should plan better and optimise offshore operations in order to meet the maintenance burden resulting from the introduction of the wind farm. Spirit has explained the operational challenges that make this position unrealistic and untenable, and provides the following further information to assist the Applicant and the ExA.

Spirit's Optimised Maintenance Plan

- 3.12 The following constraints highlight the dynamic nature of managing the NUI flying and maintenance schedules:
- 3.12.1 The platforms are restricted to the POB and landing requirements.
 - 3.12.2 Reduced manning and equipment permitted on the aircraft due to weather, fuel load, and available flying hours can restrict payload limits.
 - 3.12.3 Days may have to be shortened due to NHV operations and technical issues, ground staff and pilot availability.
 - 3.12.4 Changes to shared flight schedules with other operators such as ENI.
 - 3.12.5 Changes in weather meaning the assets must be demoded early, i.e. inclement weather, available flying teams and working hours.
 - 3.12.6 Each flight is optimised to fill the maximum payload available and the optimum blend of crew including trades and vendors with the correct competencies to undertake the activities planned for that day or week. Each trip must meet the safety case requirements for a NUI OIM and an additional qualified Major Emergency Management Trained Person to be in attendance. That core crew

have the correct skills and certifications to enable vendor work, liquidate the planned maintenance as well as handle any emergency response duties. Agreed vendors also have to be mobilised in accordance with their available time. This limits the flexibility with which Spirit can manage its persons on board (POB) and payload limitations.

- 3.13 To illustrate the operational challenges already present in East Irish Sea aviation operations, Spirit has provided the flight data for the week before this submission (27th February 2025 to 5th March 2025) in Table 2. Spirit wishes to emphasise that this is a typical week: it has selected the week before the submission as recent example rather than selecting a 'worst-week' to best assist the ExA and the Applicant.
- 3.14 The table shows that the duration on the asset is not all productive time. Time has to be accounted for landing of the full team, equipment unloading and reloading, toolbox talks and other safety planning which takes around 2 hours.
- 3.15 In the specific examples below, numerous constraints on available productive time outside of Spirit's control impacted planned full days of maintenance. For example, on the 27th February 2025, the airframe wheel nose had to be replaced, delaying departure significantly and leaving less than 3 hours of productive time. On 28th February 2025, freezing fog caused onshore delays that limited productive time to less than 4 hours. The airframe of the helicopter had technical issues on 3rd March 2025 and 5th March 2025 that delayed the flights, leaving less than 6 hours of productive time. This compounded aviation restrictions requiring an air-test flight and Health and Usage Monitoring (HUMS) system download on 1st-3rd March 2025 which had already delayed the flights.
- 3.16 Aircraft technical issues, mechanical repairs and weather are just a few of the factors Spirit already has to accommodate in its day-to-day operations and execution of its 365 day maintenance plan. These factors outside of Spirit's control require Spirit to continually update and manage its maintenance schedule to ensure completion of its safety critical maintenance. Contrary to the Applicant's suggestion that further constraints would merely be an 'operational nuisance', Spirit hopes that these examples demonstrate to the ExA and the Applicant the real operational challenges outside of Spirit's control that it faces day-to-day. These constraints cannot simply be 're-optimised' and Spirit cannot determine that 6 or 7 hours will be completed each time it attends a NUI: Spirit has to work with the time available limited by factors outside of its control and re-allocate the scope of work intended to be completed that day as required. The major limitations on Spirit's ability to reach its assets due to the inappropriate siting of the Proposed Development in unreasonable proximity to Spirit's assets severely impacts Spirit's ability to manage its maintenance burden and ensure the safety of its people.

Table 2: Productive NUI time 27th February to 5th March 2025.

Date	Check in time (CPC)	Arrival at NUI	Departure from NUI	Duration on asset	Productive time
27/02/2025	07:00	12:30	16:46	04:16	02:16
27/02/2025	07:00	12:47	17:24	04:37	02:37
28/02/2025	07:00	11:32	17:21	05:49	03:49
01/03/2025	07:00	08:19	17:07	08:48	06:48
02/03/2025	07:00	08:21	16:57	08:36	06:36
03/03/2025	07:00	08:37	16:36	07:59	05:59
03/03/2025	07:00	09:13	17:01	07:48	05:48
04/03/2025	07:00	08:32	17:23	08:51	06:51
05/03/2025	07:00	10:15	17:24	07:09	05:09

Concern 2: The Applicant has failed to address Spirit's safety concerns

Safety Impact

- 3.17 Spirit's three main areas of significant concern for safety impacts are (i) its ability to utilise its preferred means of evacuation (ii) the maintenance of Spirit's SECE's in an appropriate and fit state, and (iii) the additional helicopter transportation risk that would be imposed on Spirit's NUI team through the significant number of additional flights that would be needed to execute the maintenance strategy.

Evacuation

- 3.18 The bridge linked design of CPC makes evacuation by CAT a reliable and preferred evacuation process.
- 3.19 Spirit has emphasised that while examples of emergency situations that fit or don't fit the context of CPC can be provided, the crucial point is that the proximity of the windfarm restricts a key means of evacuation. The Applicant has accepted that evacuation by the usual and preferred means of evacuation (CAT) would be restricted by the windfarm. However, the Applicant has persisted in refusing to accept the likelihood of that scenario and maintained that reliance on SAR – a highly in demand, national emergency resource outside of Spirit's control – should be relied on by Spirit in planning for its emergency responses. Spirit considers this an untenable and high risk position to take.

Safety Mitigation measures

- 3.20 The Applicant has suggested that if safety critical maintenance becomes significantly overdue as a result of the windfarm restrictions, Spirit can shut down the asset. The Applicant considers this a commercial rather than safety issue.
- 3.21 Setting aside the fact that Spirit's East Irish Sea (EIA) assets provide critical domestic energy necessary to national energy security, Spirit considers it unreasonable for the Applicant to expect it to accept restrictions that push it to shut down its assets. Spirit is required to maintain the asset safely, and shut down is not acceptable mitigation for the safety of day-day operations.

Flight Exposure Risk

- 3.22 The impact on the number of additional flights needed if Spirit was limited to daytime VMC operations only has not been agreed between the Applicant and Spirit. This has an impact on the analysis of the impact of the additional flights on IRPA. Spirit maintains that the number of additional flights required would be significant. This would have a significant impact on IRPA and require a material change to the safety case.
- 3.23 The Applicant insists that risk tolerability levels would only be impacted if flights were doubled or close to that. Spirit has clarified for the Applicant and ExA's benefit that the tolerability threshold does not need to be breached for the additional risk to be unacceptable. Spirit anticipates that any significant increase in risk to personnel would be challenged by its regulator.

An increase in flights of 22% (to meet the backlog of maintenance discussed above) would increase the risk to the NUI intervention team by 49% - undoubtedly a significant and material increase in risk in Spirit's view. The increase has been calculated based on (i) baseline IRPA contribution from transportation 4.07×10^{-5} , (ii) an additional 22 NUI interventions per intervention team, (iii) IRPA contribution per in-field flight 9.2×10^{-7} (selected to maintain consistency with DNV calculation). The predicted IRPA contribution from 22 additional flights (2×10^{-5}) constitutes a 49% increase on the current IRPA contribution.

ORS Safety Report

- 3.24 In light of the Applicant's persistent refusal to acknowledge and accept Spirit's safety concerns, Spirit considered it appropriate to get an independent party to review the safety position of Spirit's assets and operations in relation to the Proposed Development. Spirit has provided this report for the ExA's benefit at Appendix D of this submission. All points previously made and discussed above are sustained in light of this report.

Concern 3: The Applicant has not demonstrated how an aviation buffer of 1.5nm is safe

- 3.25 Throughout the Meetings, Spirit has relied on examples of other offshore infrastructure where an aviation buffer of 1.5nm is considered safe. However, as Spirit has pointed out, this does not explain why 1.5nm is safe. These examples do not reflect the structure and nature of Spirit's Affected Assets, the aircraft its aviation operator uses, or its operational requirements in terms of resources, payload, and rate of access to CPC and NUIs. In essence, simply because it has been applied elsewhere does not make it safe in the context of Spirit's operations and the Proposed Development. Spirit continues to request that the Applicant justifies the basis on which it considers 1.5 nm a safe VMC buffer distance.

Post meetings: IMC Corridor Analysis

- 3.26 As detailed at the Meetings and in Spirit's previous submissions, the IMC Corridor proposed by the Applicant does not mitigate Spirit's flight losses for IMC and night flights without the use of an Alternative Means of Compliance (AtIMoc) and is therefore not a workable mitigation.
- 3.27 The proposed IMC Take Off Corridor is only applicable under the current CAA regulations and accounts only for the take-off scenario from CPC into wind originating from the corridor. Under the anticipated CAA regulations, all aviation operations to CPC, Calder and DP6 would be restricted to day VMC only if the windfarm is located within 3.0nm unless the CAA provides dispensation under the Alternative Means of Compliance (AtIMoc) process.
- 3.28 Although further clarity remains to be obtained from the CAA, Spirit further emphasises that this 3nm buffer has been agreed between operators in consultation with the CAA. Spirit understands that a meeting between the CAA and several major operators took place on 6 April 2023 in relation to Operations to O&G Helidecks in the Vicinity of Windfarms. At this meeting, it was agreed that to operate without a restriction to VMC, turbines must be located at least 3nm from an oil and gas helideck as a conservative minimum. This is already being applied by helicopter operators, including NHV, Spirit's aviation operator in EIS. In order to operate within 3nm of a turbine, the operations would need to be restricted to day only operations, 700ft cloud base; and 5 km visibility.
- 3.29 Spirit has undertaken further analysis on the IMC corridor subsequent to the Meetings. At the Meetings, Spirit presented an impact assessment which stated a 30% overall impact to NUI flights (44% impact in Winter), leading to a 22% loss to time offshore. At the request of the Applicant, Spirit has re-run the assessment with consideration of the proposed IMC Corridor. The proposed corridor decreases the overall impact to 27% of NUI flights (39% impact in Winter), leading to a lower 19% loss to time offshore available. This extremely small reduced impact highlights further that this proposal does not mitigate the lost time incurred as a direct result of the wind farm. This proposal is not significant enough to make any difference to the ability to maintain the maintenance burden and does not Spirit's operational need to fly in IMC conditions and in darkness to ensure the safety of Spirit's offshore crews.

4. **MNZ**

- 4.1 In light of the request of the Applicant in its Examination Tracker [REP4-029] and question 200L1 of ExQ2 [PD-015], Spirit considers that it may assist to provide more information regarding its concerns with regard to the impact of the Proposed Development on Spirit's Morecambe Net Zero (MNZ) proposals. The background to the MNZ project requirements in relation to the Proposed Development is set out at pages 19-23 of Spirit's Deadline 3 submission (Response to the Applicant's Deadline 2 Submissions) [REP3-102].

Project progress and requirements

- 4.2 Carbon Storage Licence, CSL0010 has a contingent set of requirements to be completed over the course of the licence period prior to the formal application for the Carbon Storage Permit. Through this process Spirit is required to present options for the engineering solution and progress them through normal development cycles.
- 4.3 To date, Spirit is in the concept and select phase of this process. To that end, it is still exploring options for offshore facilities which include requirements for compression (including seawater cooling), heating, dry trees, monitoring, power receipt from shore (electrical cables) and living quarters (manned) or temporary refuge facilities (normally unmanned). The offshore injection facility (OIF) and injection wells options include both normally unmanned and manned solutions, which are likely to be serviced by walk to work (ship) access and also helicopter access.
- 4.4 The nature of these offshore facilities is not dissimilar in many respects from Spirit's existing assets when it comes to the need for helicopter access. Such need will be defined by both the safety case requirements for personnel welfare, asset maintenance and the need to maintain availability and performance. The MNZ CO₂ storage solution will provide a service provision within a full value chain i.e. onshore capture project, through transportation pipelines onshore and offshore to injection facilities offshore. The Transport and Storage (T&SCo) issued by DESNZ and the regulators set a minimum requirement for availability, circa 96%+. This is far higher than traditional oil and gas expectations and will necessitate a fast reaction to any offshore incidents or outages. In the case of MNZ this is critical, as connected to the store will be five cement and lime producers, representing 40% of the UK cement production capacity and as such going off line is a matter of national significance. Thus Spirit's need to rapidly gain access to the offshore facilities is likely to be weighted highly in the concept selection process, which would likely determine helicopter access.
- 4.5 All options under consideration require large bore high pressure pipelines to transport captured CO₂ to the store. Pipeline options under consideration include routes from north west England and from the vicinity of the existing gas terminals in Barrow; a number of existing pipelines are under consideration for re-purposing as CO₂ transportation. All pipeline options require access during the construction phase and access for inspection, repair and maintenance to support safe operation through the life of the store (40 years plus 20 years ongoing monitoring).

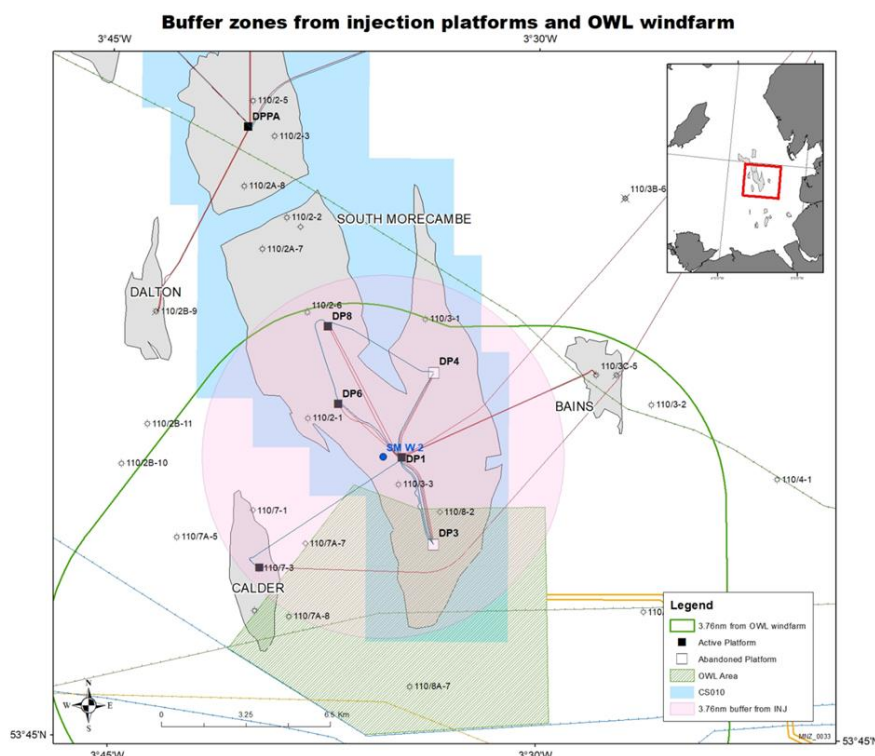
Subsurface Matters influencing location of offshore facilities

- 4.6 The South Morecambe CO₂ OIF and injection wells need to be located in areas with the highest reservoir quality to ensure that Spirit maximises use of the theoretical storage capacity of the reservoir whilst also minimising the number of injection wells required to sustain the necessary CO₂ injection rates.
- 4.7 The South Morecambe field has a large well database of 36 production wells and 8 exploration wells which enables Spirit Energy to confidently map the reservoir quality variation across the field. This mapping clearly demonstrates that the best reservoir quality is found in the southern part of the field and that the quality decreases towards the northern part. The South Morecambe OIF and injection wells are therefore likely to be located close to the CPC/DP1 platform area which is where the best reservoir quality and the thickest sands are proven. Other options were considered further south but Spirit has sought to achieve as much separation from the Proposed Development as possible.
- 4.8 North of the CPC/DP1 platform, the reservoir quality reduction would make it extremely challenging to utilise the full extent of the available reservoir nor achieve the necessary injection rates. Even if this were possible, it would undoubtedly mean that Spirit would require multiple additional wells and increased OIF requirements (larger platform footprint, increased power requirements, higher maintenance etc) with the potential for construction and operation costs to vastly increase. It is far from clear that this would be technically feasible or economically viable.
- 4.9 Even if one ignored the concerns about the technical feasibility and viability of locating the offshore facilities to the north of the reservoir, Spirit must also consider its regulator's requirement to engineer a solution that represents efficient and economic development.

- 4.10 The CCUS industry is technically regulated by the North Sea Transition Authority. Unlike petroleum, this will include a number of other regulators, including, importantly, Ofgem. Ofgem act as the economic regulator for the industry. Its core role is to *"work with government, industry and consumer groups to deliver a net-zero economy, at the lowest cost to consumers"*. Under the Energy Act 2023, Ofgem's duties specifically for CCS includes to *"promote the efficient and economic development and operation of transport and storage networks taking into account how those with a licence finance their activities"*. Thus, increased capital costs for the project i.e. more wells etc puts at risk the likelihood of economic licence award.

Helicopter access

- 4.11 As previously explained in Spirit's submissions, the proposed wind farm development significantly inhibits helicopter operations in the CPC/DP1 platform area and this would apply equally to the helicopter access that would likely be required to the proposed South Morecambe CO₂ OIF.
- 4.12 The map below shows the location of the proposed 'SM W 2' OIF and injection wells. By way of illustration of the potential constraints, a 3.76nm aviation buffer zone has been shown, measured from the proposed OIF location (shaded pink) as well as from the Proposed Development boundary (edged green).
- 4.13 If an injection site were to be located outside this buffer, in order that it can be accessed via helicopter as is expected to be required, it could only be placed in the northern part of South Morecambe field where the poorest quality reservoir is found. Outside the buffer zone, the injection wells can only access a small areal extent of the South Morecambe reservoir (~15%) and the injection rates would be significantly impacted by the poor quality reservoir there, to the extent that only a small portion of the asset's storage capacity could be utilised, significantly impacting the cost of abatement and commercial viability of MNZ.



Implications

- 4.14 If the MNZ project is forced to adopt an OIF in a sub-optimal location there are a range of potential consequences:

- 4.15 It may not be possible to design a suitable and viable OIF and injection wells that meet the requirements of the MNZ project or one that is viable.
- 4.16 Even if a technical and viable solution is possible, it is highly likely that Spirit would not be able to fully utilise the extent of the reservoir from an injection location further north and/or that the necessary injection rates would not be achievable.
- 4.17 To the extent that a technical and viable solution could be found, this would certainly not represent efficient and economic development when compared to the preferred location for injection.
- 4.18 This must all be considered in the context of one of the overall objectives of both developments; that is to say the reduction in global GHG emissions. Spirit has been clear in each of its representations that this aim is at the heart of its future business and that it therefore supports the overall objectives of the Proposed Development. Nevertheless, to the extent that the Project might impair or prevent the MNZ project, it must be pointed out that the maximum CO₂ storage capacity of the South Morecambe asset is 850 million tonnes and the base case is to commence injection of CO₂ at a rate of around 4 million tonnes per annum rising to a target of 25 million tonnes per annum by the end of the first decade of operation. By comparison, the Proposed Development is stated to displace in the region of 1.03 million tonnes of CO₂ per annum and a total of 36 million tonnes over the life of the project. Thus, even a minor impact on the MNZ project has the potential to negate significantly more than the entire CO₂ displacement that might be achieved by the MNZ Project.
- 4.19 MNZ will provide carbon capture services to the Peak Cluster. The Peak Cluster will serve to abate CO₂ emissions from major industry in the north west of England, including cement and lime production facilities. These industries generate carbon emissions as an inherent part of their production process and cannot be otherwise mitigated than by carbon capture. The purpose and need for MNZ therefore is not capable of being addressed in another way as there are no credible alternatives for the reduction of carbon from these industries. By comparison, the Proposed Development abates CO₂ emissions in virtue of renewable energy generation, but it is not the only possible source of renewable energy and is capable of being sited elsewhere.

5. **Shipping and Navigation**

- 5.1 Spirit refers to and maintains the summary of its position detailed at Section 8 of its Deadline 4 submission [[REP4-069](#)].

6. **Protective Provisions**

- 6.1 Spirit has held a number of technical meetings with the Applicant in an effort to understand the technical differences in assumptions and assessments which lead to different outcomes in terms of the impacts of the Proposed Development on Spirit's operations. Spirit and the Applicant are seeking to arrange a meeting at the end of March to progress discussion of the protective provisions.
- 6.2 As will be apparent from the 18/02 Minutes, these discussions have been complex and wide ranging with actions on each party. As any protective provisions will be highly dependent on the technical matters being discussed, Spirit has not considered it efficient to commit to legal drafting before thoroughly exploring all of the issues. Now that the parties have more clearly identified the differences between their assessments it is now considered possible to prepare a draft of the protective provisions relating to the matters discussed at the technical meetings, and this is currently being progressed.
- 6.3 We will continue to update the Examining Authority on the progress in this regard at suitable intervals or milestones.

Eversheds Sutherland (International) Limited
11 March 2025

**APPENDIX A: Minutes of Meeting between Spirit and the Applicant on 18th
February 2025**

EIS Windfarm Aviation Meeting

between Spirit Energy (Spirit) and Morecambe Offshore Windfarm Limited (MOWL, the Applicant)

in relation to the Morecambe Offshore Windfarm Generation Assets DCO

Tuesday 18th February 2025

Representing Spirit Energy

[REDACTED] (Spirit)
[REDACTED] (Spirit)
[REDACTED] (Spirit)
J (Spirit)
[REDACTED] (Spirit)
- [REDACTED] (Spirit)
- [REDACTED] (AviateQ)

Representing the Applicant

[REDACTED] MOWL)
[REDACTED] - CR (MOWL)
[REDACTED] MOWL)
[REDACTED] (Anatec)
[REDACTED] (Anatec)
J [REDACTED] (DNV)
[REDACTED] (DNV)

Note on the minutes

Before recording of the meeting commenced, there was a discussion around what is to be delivered for D4. MOWL was of the impression that a high level summary is all that the Examining Authority (ExA) requires and although they have fuller minutes, they propose to submit this in relation to minutes between Spirit and the Applicant. Spirit confirmed their intention to submit minutes, albeit with a joint summary, as Spirit heard the action from the ExA to deliver minutes and that is what Spirit intends to do. If we don't receive actual minutes from the Applicant, as consequently happened at the last meeting of 31st October 2024, Spirit will need to draft its own minutes to submit.

Introductions and CR setting up the Agenda for the session.

CR - So I think from our side, we very much see this as a continuation from the shared understanding meeting on the 13th with a view to gain a closer alignment in terms of both the aviation assumptions and safety implications as a result of that. To date we've respectively put forward alternative approaches and calculations and numbers. We'd like to get to the bottom of those differences. We see this as a critical step to getting closer together in terms of what a solution can look like and how the two assets can coexist in a safe and practical way

SG - Very similar intention from the Spirit side - continuation of the shared understanding meeting last week. The two key elements we want to understand in the differences are the safety assumptions and aviation assumptions and what is driving the difference of opinion as we are still quite far apart. As we said last week, we operate under the strictest of regulations for good reason. We have significant safety concerns with the proximity of the windfarm to our infrastructure. It leaves an intolerable impact that Spirit can't actually compromise on. We're really concerned with how we find a way through this. The starting point is exactly what we have been doing last week. We really need to understand where the differences are so we can have level playing field of a shared understanding to see what is possible going forward.

Safety

CR - Perhaps if we could step into the first topic and first item on here being safety and for ease we perhaps summarise some of the clarifications to your safety analysis and we can step through those

JM - Chris do you want us to come in here?

CR - Yes.

Safety Assumptions

JM - There is a lot of common ground between us obviously. We fully understand and support people within the regulatory framework that's been mentioned and are fully aware of safety critical elements and the requirement to maintain safety cases. For clarity Alex and I are not helicopter experts so we only deal with safety side. First point we can minute is clearly if you can't go out to a platform to carry out maintenance and don't mitigate that then the effect will just gradually build up and up and up. Clearly the backlog you will face will just increase and increase and increase. That is obviously an unacceptable situation and we 100% recognise that in what you've raised with your working hours which is a good way of looking at it. I think that is an easy point to agree on. If you have helicopter flights that are not available, you do nothing to mitigate that, the number that are not available just gradually builds up. You're not able to do maintenance and it will become some sort of unacceptable situation, completely agreed. Do Spirit want to add anything?

RM - No - definitely welcome recognition on that.

JM - Second point we want to make within our report is that any of those cancelled/delayed flights are also, counter to that, not critical. If I need to do maintenance on a particular item of equipment, the exact day I do it is not critical. I don't know exactly how you arrange your maintenance system but many are arranged with float involved that I can do the safety critical maintenance in a certain window, I'd maybe aim to do it at the beginning but I'm free to do it at the end of the floating window and it is common process to also think about potential deferrals as well. Obviously, you don't want to do that but there is that process in place. Any flight cancelled or postponed is not an issue in itself it's if this builds up and up over months.

SG - I will let Ros come in on the technical elements, but on the ability to switch around maintenance when something is cancelled, if something needs cancelled and you need to reinsert it somewhere later, that is how we operate now but what we are saying is that with the flight restrictions from the windfarm, there is nowhere for us to put it all.

RM - On your first point I can agree with you that simply rescheduling a flight to a different time has no impact on risk exposure, however we are very concerned on the overall impact of the flight restrictions and how many additional flights will be required to execute our maintenance strategy. But it is good you acknowledge that if deferrals build over time, then there is an issue and that is a real concern for us for in terms of risk exposure.

JM - In summary I assume we are talking to NUI's in terms of maintenance, as on CPC1 you have the crew onboard apart from specialists where you need to maybe fly those in for specific jobs but probably the vast majority of maintenance people don't need to fly anywhere they just have to walk across the bridge. Just to clarify it is NUI's we are talking about in relation to maintenance?

RM - I would say that is my primary concern however we do have some concerns in relation to execution of maintenance strategy on CPC. Much of the maintenance on CPC and certainly much larger maintenance intervention campaigns require support from specialist vendors so if we have flights restrictions impacting our ability and introducing delays in getting these specialist vendors mobilised to CPS, that has the potential to impact the execution of our maintenance strategy on CPS because these specialised vendors are booked well in advance and if we miss an availability window it could be many months before we are able to reschedule that activity.

RAM - Therefore when we are talking about Spirit personnel on Spirit jobs and the impact of one lost flight, we have to contemplate that it can be third parties and it is not quite as easy as getting them out the next day. There isn't therefore quite the same prolonged period of time to see an impact - it can be really quick if we are waiting months after a missed slot.

JM - I've been offshore and stuck an extra day or two due to the fog. This is just another factor that has to be considered in the ever changing array of people going offshore. So yeah understand that as well, it is another factor that changes the availability.

Safety Mitigation

AG - If the safety critical maintenance becomes overdue to the point you feel you can't operate, then surely you would just shut in then it becomes not a safety issue but a commercial issue?

SG - We have a requirement to maintain the asset and not let it get to the point that it's burdened so much with a backlog that we have to shut in.

RM - We can certainly not accept restrictions that back up into a corner where would have to shut in our NUI assets every time we want to go there. That is not an acceptable position for us.

RAM - Is the suggested mitigation against safety that we would just shut down operations?

JM - I don't think it is. My colleague is pointing out that many of these aspects can be commercial issues not directly safety issues because the risk can be removed or mitigated by just significantly more helicopters in summer. Individual flights are not an issue but if it builds up over many, many months and you don't have time to do the maintenance that's the only time it becomes an issue.

RAM - We've got obligations as a reasonable prudent operator so shutting in isn't something we can factor into day to day operations. If we can try and park suggestions for mitigations and allow us to inform you on how we operate. You could say, well, just don't produce oil and gas if that's where that argument is from, that if it is not safe you just stop, because it is a commercial issue. But you know that is not something that could possibly be adopted by an operator offshore, so maybe if we can keep mitigation discussion to real life. And if we are talking about flying offshore with additional flights, we can revisit the analysis we shared. We have run a lot of analysis about the impact and cumulatively we've been able to evidence the impact and that there aren't enough days to add additional flights so maybe we can get into the detail around that. I'd urge us to focus on the impact rather than mitigations that aren't real life.

CR - Well noted. I'd like to come into that conversation about the time offshore model and the safety impact and maintenance strategy so we can come into that shortly. I would just ask the DNV team if there is anything else you want to bring up.

Safety Impacts

JM - Just going back to our report and all the correspondence and submissions, is the only issue from Spirit the maintenance of NUIs?

RM - No, absolutely not.

JM - I mean in terms of helicopter distances and stuff is it that issue you have at the moment?

RM - We have three main areas of significant concern, one being our ability to access our preferred means of evacuation, the second being yes, the maintenance of our SECE's in an appropriate and fit state, and thirdly the additional helicopter transportation risk that would be imposed on our NUI team through the significant number of additional flights that would be needed to execute the maintenance strategy.

AG - But in case of emergencies you wouldn't use CAT you would use SAR

RM - I strongly disagree with you, Alex, and we have provided a detailed response that I'm happy to go through the key points of that if you find that useful.

AG - Might be helpful to see the report first.

RM - Ok it'll be in our submission today.

SG - It's worth highlighting the key points for concern Ros, if we can go into those.

RM - Yes I can absolutely do that.

SG - We've read the report and had various internal discussions and looked at it in depth, it's not a knee jerk reaction on first read. Ros has highlighted three key areas of concern and it's worth giving a couple of summary points on each because we've got the experts in the room that wrote the report so it would be good to understand as part of shared understanding. If you have disagreement let's talk about it so we can see if there is common ground we can reach.

Evacuation

RM - From my reading of report a point I took was that helicopter evacuation would be unlikely to be successful and that lifeboats would be much more likely to be used because helicopters would be slow to an evacuation event and the helideck would likely be impaired through smoke or thermal radiation and so on. Is that an accurate summary of your position, Alex?

AG - I was saying helicopter evacuation is unlikely and there are three reasons for that (i) as CAT generally isn't used for evacuation unless you have very long lead time, it's more likely to be SAR, (ii) helicopter capacity with 170 POB in an 8 seater helicopter to evacuate everybody would take between 18-24 hours by my calculations and (iii) in most cases, if there's an event ongoing a helicopter wouldn't come in because of smoke, heat or if there is an unignited gas release the aircraft wouldn't be able to approach anyway in case it gets gas into the engines. So what I see is you can't rely on helicopter evacuation.

RM - I'll come to each of those points in turn. We noted from your report in support of that position you offered some examples those being, Piper Alpha, Ocean Odyssey, Mumbai High and Deepwater Horizon which you obviously consider are representative examples of what we would experience as an evacuation event on CPC is that correct?

AG - Yeah.

RM - Why do you consider these to be representative of the situation we would face on CPC because certainly from where I am sitting, the likelihood of successful evacuation from CPC is much higher by helicopter than with any of those examples you've given.

AG - Examples were given because those are the ones that are common knowledge in society.

JM - Ros what's your point?

RM - You haven't made any reference in your report about the bridge link design of CPC. You've made no reference on how that might improve the prospect and likelihood of successful helicopter evacuation. You've made no reference or mention of the role of our temporary refuge in preserving life and indeed the design of CPC that places that temporary refuge quite some distance away from process hazards. All this adds up to an asset that is designed to improve and increase the likelihood of a successful helicopter evacuation over and above the design of the examples you gave on paper. Mumbai High was a particularly catastrophic initial event. In that case, are you suggesting the initiating event is representative of evacuation events on CPC? Because I would certainly argue that it is not generally representative of the events that would cause us to want to execute an emergency evacuation from CPC.

AG - In Mumbai High, whether it was a catastrophic initial event or not is irrelevant because the weather was such that helicopters wouldn't have been flying and that is one of the reasons I've included it.

RM - That is a valid point however, in the example of Rough which executed successful helicopter evacuation to what I would consider to be a massive fire event, that asset, like CPC, was a bridge link design and much more representative of the situation we would face on CPC. Do you have any thoughts?

AG - Rough wasn't a massive event, it was a settled nature but the safety systems worked and limited the size of the release. The helicopter didn't come in until the event was effectively over. If you look at some of the witness statements, some of the guys managed to evacuate from the further most platform over the central platform and back into the temporary refuge, something they couldn't have done if the fire had been rampant because they would've been badly burned. By the time helicopters got in the event was effectively over.

RM - The event wasn't effectively over. Yes, some personnel evacuated from the central jacket to the wellhead platform over the bridge link and evacuated from there by lifeboat. The event was still ongoing when people were being evacuated from the temporary refuge by helicopter. I have other examples of successful helicopter evacuations that I can include within our submission. But this is a very good example of how much more successful a helicopter evacuation can be with the type of platform design we have on CPC and you've made no recognition of that within your report.

AG - So do you intend to evacuate using CAT aircraft from Blackpool?

RM - Yes as part of evacuation response a mayday would call any and all resources available to us.

AG - If there is a fire on processing platform and smoke is drifting over the accommodation platform then a helicopter evacuation is not credible so your best bet would be to sit in the temporary refuge and sit out the event and bring in helicopters later when they are needed and you can use SAR and CAT.

RM - That would certainly would be one of the options under consideration by the OIM but there are others. For example, we have a secondary helideck on DP1 that could be utilised in the event that the primary helideck was impaired. We also have to consider how events can escalate over time. So yes, the temporary refuse would provide us with protection for a period of time while we considered our options for evacuation and manage those in a controlled manner.

RAM - I'm not an expert but to take it up a level, the point is that there are case studies that fit the report and circumstances that fit the report but fundamentally it depends on the incident whether CAT would be an option and our concern is you're taking away our option where it could be utilised. I think the base case understanding that we need to share here is that of course if we trawl through history there will be examples that we could put forward but we need to look at it all in the round and not cherry pick the information. You can suggest circumstances where we wouldn't fly and we can then put forward circumstances where we would fly. It's not cutting through the understanding for me. Can we have the conversation at a level accepting that there will be circumstances that fit your report but that's isn't reflective of whole circumstances that we're facing and there's a real safety concern. There is an opportunity to get our people off as fast as possible where we would utilise commercial aircraft but we couldn't do it as a direct result of the impact from this windfarm.

OG - To flip that on its head though, there needs to be a recognition that there will be circumstances where you can't use CAT already for a number of reasons, depending on the type of incident, depending on the weather conditions. If an event occurs at a time of night when the airport is closed you can't use CAT. So to flip it on its head, there are already circumstances and situations where you wouldn't be able to use CAT which may be your preferred means of evacuation but it's preferred and I assume Ros that you do have other options available depending on the type of incident and that decision would be made on case by case?

RM - Yes we would.

RAM - There is constant flipping it back on us. I think what we're looking for here is we are happy to look at this balanced as you will hopefully see from our impact analysis where we haven't just used worst case scenario to try and paint a picture. We have introduced balance and reasonableness and actually looked at the data. What we are looking for from your side is an acknowledgment that the case studies and circumstances being discussed are simply those that fit the narrative of the report and there are wider circumstances whereby CAT could be utilised but we wouldn't be able to. Of course, there are already elements operating offshore with helicopters where you may be constrained but I would like to start from that understanding, and then we can take on the question you have posed back to us but can we recognise that piece first please?

CR - My takeaway here is that our key assumption in the analysis is that evacuation under CAT would not be a preferred or primary approach. We've learnt here that it is preferred means of evacuation. We can discuss all day about how likely that would be in any particular incident or scenario but that is unknown effectively and it will always be case by case basis and will always be a decision by the asset or OIM at the time of an event. So I don't think that's something we can conclude on but we do recognise that evacuation by CAT may be used.

JM - I think the takeaway is preferred but cannot be relied upon for the numerous reasons that may or may not be applicable to the actual event. Clearly its preferred - it's your normal way of getting on and off the platform. We're sort of debating how likely it is that you actually are able and can and will use it. The circumstances are slightly reduced as a result of restrictions from the windfarm I guess is that significant? We think not.

RM - So you agree that flight restrictions reduce our access to our preferred means of evacuation?

JM - If you are saying its preferred means then yes it probably would but other means it wouldn't such as SAR.

CR - I think we also still dispute how likely that scenario is. I think we still have a point of difference about how likely that preferred means of escape or evacuation may be used in reality which I don't think we can reconcile without further data.

RAM - That's why I was trying to take the conversation up a level. We could spend next two hours covering situations that would or wouldn't. Regardless of the view on impact there would be circumstances where we could use CAT for evacuation where we would be unable to. This is the key message we are trying to get across and feel like the point has been lost in the exchange of case studies.

OG - It is acknowledged that the presence of the windfarm will lead to some restrictions to certain circumstances and to the availability of the operator to undertake CAT and so that therefore is any time you need to use helicopters. So whether it is for a shuttling to a NUI, bringing vendors out to CPC or to take people off in the event of an emergency, we obviously recognise that there isn't a special circumstance that says just because it is an emergency you can now fly when previously you couldn't.

RAM - That's helpful Oliver. The distinction here is how likely that would occur. We are never planning on emergency scenarios so there isn't data to look back at. An emergency would be a worst case scenario for an operator offshore. There are measures of safety/risk and we've hopefully been able to demonstrate that but how likely it will be depends on the emergency scenario and thankfully there aren't too many examples given the magnitude of these industry events. I think let's move on if everyone happy to?

AG - We're all assuming these emergency are at nights and IMC as that's the only time there would be restriction.

RAM - What we are saying is an emergency situation doesn't wait for daylight. It would occur when it occurs and we would need to respond when we need to respond. It isn't something you can hold off on as you go when you need to go.

AG - That's the reason that SAR is available

OG - The point Alex was trying to make is that there are different levels of emergency which call for different responses. If it's one where you need to get everyone off quickly then obviously SAR or lifeboats would be first. When you have more time, then you'd use CAT and you'd potentially have that longer period of time. So just because an event starts at 4am and it's still dark, you can wait a few hours for the light to then start to evacuate.

RAM - Well let's talk about SAR - I'll hand over to Ros as I think this is a key point in terms of our understanding in the SR space.

RM - If we were in a scenario offshore where the OIM felt there was an immediate threat to life, he would initiate the evacuation process immediately. He would not wait for daylight to start doing that. Whether or not there are CAT aircraft available to us, there are times they won't be, but we cannot base our response on that. When we need to evacuate we need to evacuate. If we had CAT available we would utilise them. We would call on SAR, we would utilise any and all means available to us to evacuate the people from the asset as quickly and safely as we could so we would continue to use helicopter evacuation for as long as we had an unimpaired helideck.

CR - Yeah.

RM - I will bring Denis in.

DU - It's worth adding that there are three aircrafts positioned in Blackpool. Two of them are contracted to Spirit and we have the ability to call off from other bases in Aberdeen and Norwich etc where the aircrafts will be available at CPD within one hour. If we are doing evacuation, whether it is emergency or not, nothing is stopping us from evacuating people to nearby facilities including the ENI facility which will be five minutes away from CPC or NUI's which we can pick up from later on. So there is no sole reliance that there is one aircraft that can go Blackpool to CPC and back. We will evacuate using the most efficient way including dropping people off within the nearby facilities.

RM - Totally agree with you there. We would use helicopters as long as we had an unimpaired helideck and an unimpaired temporary refuge. Lifeboats would be used as last resort and not one an OIM would take lightly.

CR - That's well understood, one question is whether aircrafts are available to fly at night or are they only on day operations?

DU - Based on airport opening hours, we have a contract with the airport which allows us to extend the opening hours based on overtime provisions which with the ATC and fire brigades, allows us to operate outside normal hours and with the ability to extend airport hours to operate within the wider window. You will be calling off all the resources required, pilots, engineers and traffic controllers as well.

CR - I guess in an emergency unforeseen event do you have availability to call off in middle of night?

DU - So we have provisions for extended airport hours, we have a contractual agreement with Blackpool Airport for providing us with the services. So we can call on them. Based on availability, the airport would be open.

AG - If you do have emergency in middle of night, presumably you've got to call airport staff to open the place and bring in flight crews?

DU - Crews are stationed in Blackpool and there are multiple scenarios that will happen. Depending on when it happens, we will use the resources available at that time. If the event starts at 7pm or 9pm in the evening then the airport will be open through the night. If it happens at 4am then it will be based on available resources at the time.

CR - Mark, do you have comment here?

MP - Note all comments made but I think it's worth making the point that if a major incident occurred then the MCA would become involved. You would get a helicopter both from Prestwick and Caernarfon and also plans in place for one of the Irish ones from Dublin so you could within the space of a day in about an hour have three SAR machines in place and at night of course because they have a longer reaction time that is likely to be about an hour and a half. Their response would be much quicker than flying in from Norwich or another site. And of course they do not have the same restriction based on weather or at night.

DU - I would agree with that however, as outlined before, the business and OIM will use all available means to start evacuating the platform including CAT and SAR and we would have a whole emergency team mobilised within our office as well, providing all resources over all contracts and bases. All would be dictated by the event.

SG - I think that's a really useful conversation. I am going to propose that unless there are any more questions or comments that we move onto maintenance SECE and increase of individual risk.

CR - We would like to step through the aviation calculations.

RAM - Can we stick to agenda and do that once safety is concluded if that is ok? I'd like the minutes to tie in with the agenda because they sit in item 3.

SG - It's worth going on to the maintenance elements first. I am keen to get to the calculations but think we should step into safety. We can take a call if we are spending too long on the conversation and I don't think we should leave the meeting without doing the calculations but I think it would be good if we could step into the second part of the safety conversation.

Maintenance

CR - Understood so let's do that then. *Putting clarifications on update of safety analysis on screen.* I shared this in email yesterday and we have added one more line item here. Are we able to step through that now?

SG - It's worth Ros giving an overview on maintenance key points. This could flow naturally into that and we could probably have some answers in the room at the end. Anything else we can take away, especially the new one. So let's step into those key points and then we can tick off some of these as we go.

RM - On reading the report, a couple of statements that I disagree with are that SECE's have a failsafe and SECE's have built in redundancy and I'll come to ask some clarification on that shortly. Also within the report you seem to be trivialising the role of inspection and testing in the management of major accident risk and made quite light of deferrals. You've made reference to industry standard risk assessment and the thread through all of this and what a reader could take from that is that you're implying that it's not an issue if we defer these activities and it is not an issue if we have a second impairment because we can just do a risk assessment and in any case SECE's failsafe and have built in redundancy. Would you like to clarify your position on that?

JM - Clearly not all SECE failsafe. If one has deluge system, many elements of that won't failsafe. If you have a hole in it or blockage of nozzles, clearly that's not a failsafe. Our main point was that for many SECE's a failure of that SECE will actually lead to either a shutdown of the installation or a

situation that can be managed in terms of knowing about it and being able to deal with it. I would also say some SECEs have redundancy and others don't. Clearly we don't know the details of your installation. It would be typical for example, certainly on CPPC, probably not the NUIs, to have redundancy in relation to deluge pumps. Probably on both you have redundancy in relation to gas detection. If you lose one gas detector, that's probably not an issue. You have to lose a number of different gas detectors. When I say lose, I mean not working, for that to be an issue or likewise for the maintenance to be delayed on them. I wouldn't make light of doing ORAs or having impaired SECEs. I don't think we do in the report at all. I refer to the conversation earlier that a cancelled flight, a short deferral, a bit of maintenance that you need to delay is not an issue but if you have that scenario and do nothing about it for months on end then clearly, it will become an issue and it becomes an issue of being able to manage that deferral process. It can be managed by more flights or a change in the arrangements between assets or the notice you have.

RM - So you would agree with me about deferrals?

JM - It is not impossible to imagine that if you weren't there for the entirety of November, December, January, for example, that would not be an outrageous model to have. Does that answer your question?

RM - Partly. So you would agree that deferrals carry with them a certain level of risk and SECE impairment carries a certain level of risk?

JM - Of course SECE impairment does. SECE impairment is not the same as maintenance: you would need to have a failure in the first place that you need to then react to so I would say that is a slightly different issue.

RM - We're agreed SECE impairment increase risk. What about the deferral of SECE assurance activity? Do you agree that they also increase risk?

JM - They may in some case but in some cases they may not.

OG - Again, we're getting into hypothetical sort of scenarios here again as we did with helicopters where you can point to an individual piece of equipment that you could defer and something that you couldn't. What we are trying to get to is that it's not that an individual piece of work is the issue and you acknowledged that at the beginning. It's that build up over time and we acknowledged that at the outset.

JM - Your analysis has 22% adding in year on year which equals 110% after year 5. That 22% assumes you can never recover. It takes no account of the corridor mitigation proposal. It takes no account of the 14% of time that you are flying but don't go to any of the NUIs. It doesn't take into account that that percentage can be reduced if you use 6 or 6.5 hours instead of 7 or considering flying on the days that you are able to fly and previously didn't go to the NUIs but going to those NUIs. So your analysis lies on that 22% being irrecoverable and clearly that becomes an issue as it mounts up but we're maybe pointing out that there are ways in which that number can be considered to be lower in the first place and also could be reduced by catching up or doing different analysis.

RAM - Can I respond on a couple of things before we move onto impact? We're happy to discuss this as we were last week on the impact analysis. Regarding the statement around one flight not being an issue and it only being an issue if it is delayed by months: our point is that could be the case if a specialist vendor is not available. So when you are talking about these flights, we're referring to Spirit personnel being able to fly the next day, not referring to flights that may be deferred and we need to wait for the next slot [for the specialist vendor] which could be in a couple of months. Of course it depends on what the flight set out to do, what work needs to be done, and the type of maintenance. But the understanding we were wanting to get was there are circumstances where we are impacted. I think we have got to that without getting into the weeds with examples. Happy to get into impact

analysis here. You will appreciate quite a lot of work goes into running a model and trawling through flight details and pulling in time offshore. If you want us to go through the model like we did last week, Jonny is here to answer any questions, but hopefully what will come through is that we have pulled real life situations into this. This isn't just hypothetical. We didn't shoot for a period of hours that couldn't be justified. We factored in waiting on flights, breaks, etc. This is a real life model of our operations. Hopefully there will be some acknowledgement that yes you could say we could just shave half an hour off the analysis but this is the good working time that we currently operate with. As you'll appreciate, our maintenance schedule plan doesn't have scope to just factor in a 22% loss, there aren't enough days in the year. Appreciate DNV weren't in the room last week so we can talk through it again if it's useful.

SG - There's a few things John threw into the room which indicates that we do need to spend time to talk through how we did it and what it is based on. For example, you say we only fly to a certain NUIs a certain percent of the time. It goes back to the conversation we had last Thursday on how we operate, how we run our maintenance plans, how we operate all our NUIs as one maintenance plan in our annual 365 day plan. We don't have Andy MacDonald here to talk to that in the room who is the expert but we have Ros and Denis here. Is this something we want to go over again? I am open to see what we think is useful.

CR - I'd like to spend 5/10 mins at least to get a response on the clarifications if ok then we can move onto aviation.

SG - And before we go onto that, have we concluded our conversation around maintenance SECE, Ros? Have we shared all our points or are there more?

JM - From our point of view, the presentation comes up at 22%, we've no reason to doubt that. We are just reflecting that the number changes if you take corridor into account, it may change significantly if you consider days that you can fly that you currently don't go to NUIs and it may change significantly if you use 6.5 hours instead of 7. You can then achieve the maintenance that you need to such that this is an operational inconvenience rather than a safety issue.

SG - We've already concluded that it's not an operational inconvenience: it is a true safety issue because we can never regain that 22%.

OG - I don't think we've acknowledged that. I think you have stated that.

JM - Can you not regain all the time by an additional helicopter for two or three months in summer for example?

SG - I think we've been very clear that we're not looking into mitigation proposals [at this stage]. We've looked at this and 22% lost time and we've shared our understanding that this is going to create massive backlog as we go forward, even within a number of months within first year.

JM - If I have an issue and do nothing about it then clearly it gets worse and that's what you're saying here.

SG - The point we are making is we can't. There are not physically enough [working] days in the year to fly an extra helicopter, with an extra NUI team on extra days to maintain all the NUIs to the point of actually keeping that backlog under control.

JM - We can't see that one way or another at the moment. It's not possible for us to comment on whether that's the case. What we can comment on is that the 22% can be very significantly reduced as per examples above.

JC - Can I step in here? I'm just going to touch on some points. It would be useful to clarify what we mean by time offshore. It was historic analysis. We looked at the last five years of NUI flights, we

looked at the time between the first flight and last flight of the day and we measured that time. We then applied the new windfarm restrictions of no IMC, no night flights and additional wind sector restrictions. In some cases, it might have led to a cancelled flight and then we remeasured the time available. The point of the analysis is to say if we tried to operate as we currently have in the last five years, but the wind farm was suddenly there, how much time would we have lost on the flights that we did fly. That is what the 22% represents. That is the challenge that we have confidently been talking about which cannot be fully absorbed and therefore leads to a maintenance backlog building up.

CR - Can we pause there?

JM - Line breaking up.

CR - Just to acknowledge Jonny that we recognise that. I did want to clarify that you've applied the new restrictions but we understand you haven't included the IMC corridor.

JC - Yes it doesn't include the IMC corridor. I haven't been able to re-assess the impact on the time offshore. There is a small reduction in some flights that are impacted which is different to the time offshore. This is just the number of flights factoring in the IMC corridor we're saying would be impacted: there would be small reduction but not enough to really reduce that 22% by anything major.

SG - Chris, we just got this in last night so obviously we need to mobilise the team to get that run the whole way through but we're not expecting it to be massive impact because the IMC corridor only addresses a very small part of our actual impact.

CR - We would like to come onto that shortly in the aviation discussion, I think we will just park that right now but we believe the IMC corridor is considerable value to you and your accessibility but we would obviously like to verify that and if we cannot verify that then I think it is something we need to consider further in detail. But notwithstanding the IMC corridor perhaps Jonny if you could help us understand that you've done this on historic analysis.

JC - Yeah

CR - If the parameters changed and if you'd optimised the schedule in lieu of knowing the new aviation limits, would that therefore mean that the 22% could be reduced as work could have been planned in a more optimised way and mitigate the risk profile and SECE impact?

JC - That will be a question for someone downstream of me.

SG - What was the question Chris? In terms of optimising what?

CR - So assumptions in the time offshore model right now, as I understand it, are based on historic analysis. Effectively work that has been done. If you had planned work knowing the impact and limits you have going forward what would the foreseen impact be?

OG - What you would've done differently if the wind farm was there.

SG - We've looked historically at how we would've been impacted from the windfarm not being there versus the windfarm being there and then applied that to our forward looking maintenance plan, being our actual real forward looking maintenance plan.

OG - The forward looking maintenance plan has been prepared with no windfarm.

SG - Based on the historical maintenance, the historical flight times, the historical weather conditions, this is how we would be impacted. If we can no longer fly in night, IMC, etc: we've taken that and exactly that into the forward looking maintenance plan. So it is a bit of a mix of history and looking forward. It is a mix of the two.

DU - It's worth adding, as we described last week, we operate to a 365 NUI maintenance plan which is set a year in advance based on our maintenance requirements. This is also shared with our aviation provider to account for helicopter maintenance. We applied all the factors in forecasting the maintenance plan and basically there are not enough days available to absorb the additional 22% of work.

CR - If you build up work tasks within the day, if you know you only have 7 hours instead of 9, you would make up that working day differently depending on your annual forecast. So is there a space and an optimisation to change out the prioritised work orders so that you can mitigate the impact of the reduced time offshore?

SG - I get your question but we have effectively done that. You bucket your maintenance by critical maintenance and you get after that. What we are saying is that we are going to be creating a backlog because we can't get after it all. We will have less and less time and that is the maintenance that we can't actually liquidate once we are restricted in flights.

OG - You've looked at what you are planning to do in the next 12 months and you've looked at what the impacts on that campaign would be if the wind farm was present and that's where you get 22%. But the point that Chris is making is your campaign for next year presumably doesn't account for the presence of a wind farm. Therefore it's a worst case because you have not made any allowances for any changes. You'd like to access as you have done historically, but suddenly there's a wind farm there. Therefore, that's how you get to a 22% backlog. You haven't relooked at how you might undertake that work in a slightly different way that's the point.

SG - We are applying the fact that the wind farm is there to our maintenance plan. We probably need another separate session on how we do our maintenance plan and our 365 days maintenance plan. We've got however many NUIs plus CPC and a maintenance plan we have to deliver including SECE and other maintenance. I'm keen that we get to the level of understanding that we can both actually understand what it is that Spirit are saying and why it's impacting us so badly. We've taken into consideration the wind farm being in place and that time is then reducing and we physically don't have enough days in the year.

OG - Assuming no mitigation put in place?

SG - In terms of what?

OG - As in extra helicopters

SG - It's based on contractual confinements we are working within.

OG - As they currently are.

RAM - It's not just a case of throwing on an extra flight. You need an extra team. The impact analysis has factored in the windfarm presence. Ultimately it has concluded that there are not enough days in the year to catch up on the 22%.

JM - Have you also looked at the fact that you left the NUI at 3pm when you could have stayed until 5pm? You could regain 2 hours of your maintenance time in that way?

JC - What I've done is look at historical flights, and not what they are trying to do on an individual day because there are about 1500 days to look at. To go back on your point, if you had a flight where you departed 10am and back at 1pm if they just went somewhere to reset a switch, the chances are the flight wouldn't have been impacted or the amount of time you would lose offshore would have been much smaller so yes in a way that is already factored in that we are not losing much time on those flights.

DU - Just to add on some days we had to go and restart platform or we couldn't extend hours because we didn't have specialist vendor. It's easy to say we can extend by two or three hours but if you can't deliver the scope because you don't have competency in the team that day then you can't.

JM - Agree with that as well, we're just saying instead of just reducing time you can also increase it. I would say you need to look at spare time as well. If you're on NUI for 6 hours you might only need 4 hours and you've immediately got two hours available to catch up on some backlog or deferral which could be significant to the analysis as well.

JC - Just to be clear, I've measured time on helicopter departing AM & PM so say 9 hours between them, then we lose two hours to breaks etc. Just because the guys got to the platform doesn't mean they are immediately able to do maintenance work. They have to unpack their gear and pack it back up. So even though there might be 9 hours between the flights, you may only actually have 7 hours of working time. So from 7 hours, you're still going to lose 2. I've actually done 2 hours out of 9 rather than 2 hours out of 7.

JM - Completely understood that you don't grab a spanner in the first five seconds you land but the point is with all the preparation and after permits etc you might have finished after 4 hours and the helicopters not due for another two so there may be spare time available.

JC - This is something that is downstream from me.

CR - To summarise this point there are two takeaways. We would like to request if Spirit can make further review of the time offshore analysis to optimise the maintenance schedule in lieu of the windfarm and operating limits. As a reasonable prudent operator there may be scope to change your operating model to maintain a similar level of safety or similar level of maintenance discharge by adding resources. If you add helicopters and additional contracts to different people, is there any other limiting factor that this is preventing you these days to do the work offshore on NUIs because our assumption is you can add resources to discharge the maintenance.

DU - On the first part about optimising the maintenance schedule, it's worth highlighting the current plan is optimised to the current operational setup we have with the asset. We are not sending people there for the sake of sending them they are going with clear work scopes on the day. If days are shortened then there is a reason for that. We also need to account for increasing the number of days increasing the additional exposure to personnel for helicopter transportation risk. Further, on some of the NUI's we have an annual limit of landings available as well, so we cannot increase number of days we are going out there - just to highlight that.

SG - In line with what you've said Denis, we've looked at the analysis and we can't get additional days so don't see there being a solution that's throwing a change in business operational model, a change in helicopter operations model, a change in adding resources because it is actually down to a finite resource of 24 hours in a day and the ability to fly so many days on to each of the NUIs. From this point of time it's a no, we don't see that as an option.

OG - On an average day you have two intervention crews, is that correct at CPS?

DU - 2/3 crews depending on the season and the scopes.

OG - So in summer you have three crews? Do you have 3 teams on 1 NUI or 1 team on 3 NUIs?

SG - We need the correct people in the room for this conversation - we need Andy MacDonald and Dave Will who were both in the room last week. That's the guys to answer this.

OG - The point I want to make is you say you can't add more days in but you can do more on the days that you have.

SG - No because we're limited by POB

OG - Onboard the NUIs or CPC?

DU - Each NUI has a maximum POB and varies on size of NUIs.

SG - So that is finite resource as well.

OG - But you can work on different NUIs at the same time

SG - We stepped into this conversation last Thursday when we had Dave and Andy in the room so we need a further conversation if you need to stray into this conversation. We're happy to take that away.

CR - We'd like to understand analysis is based on current operating model and there has been different operations strategies i.e. bring in flotels etc. What is the lowest common denominator that prevents additional work being scheduled? Our request is if you can take away these clarifications and respond to us and we can seek to pick up this discussion further.

RAM - Happy to do that as Andy and Dave can add the additional layer of information. Hopefully from what you have heard from Denis, it is not a case of just an additional helicopter and an extra crew. The maintenance plan is optimised currently. Let's not understate what the ask is here.

OG - Totally recognise it's optimised. Of course it is. We can accept that and Denis wouldn't be doing his job if he didn't make sure it was, so we fully acknowledge that it is going to be running as fully optimised to take account of everything as it currently is.

CR - Move onto agenda item 4

Flight Exposure Risk

OG - One thing we should quickly touch on is the point around increased risk from increased flights. There is an important point to make about rescheduling flights: this does not mean new flights, just the same flight on another day. We're not taking about mitigation, but the point needs to be made about tripling the number of flights - the majority of what we are talking about is just delaying another flight. We aren't talking about significant numbers that are going to ultimately significantly change the risk profile to people offshore.

RM - On this point you're not talking about additional flights, just rescheduling. We made clear last week that the impact from our analysis is that we will require a number of additional flights to execute our maintenance strategy. Our additional flights each carry quantifiable risk to our personnel. We can calculate the impact to our IRPA as a direct result of the flight restrictions being put upon us.

JM - Clearly an additional flight is an additional risk. There is massive variation in the number of flights that happen offshore anyway. That risk I would also say is highly uncertain and significantly below the limit set by HSE. Additional flight is additional risk, but it is not a massive proportion of the overall risk that exists.

RM - I do not entirely agree with the inference you were hoping for us to draw from your report that the risk per flight is conservative. That seems to be implying that the true risk is lower than this and you've also cited the absence of fatal crashes.

JM - I'm not clear what you're not agreeing with.

RM - You seem to be implying that the risk is very much lower than would be calculated using the industry standard data. I don't agree with that. There is variation throughout the year with number of flights but that does not take away from our analysis which shows a significant number of additional flights that would be imposed on us. We still need to resolve the level of that impact which we were hoping to get closer to a shared understanding of today. Much of what I've read from your

report is very heavily dependent on your assessment that the impact is low and we wouldn't require very many additional flights therefore the impact on risk is relatively low. Obviously our analysis differs from yours, and I don't think we're ever going to resolve that point until we come together [on that]. We have concluded from our analysis that there is a significant impact.

JM - What do you mean? The addition of the windfarm is not a material change to the safety case

RM - That is your judgement.

JM - Yes. It's going all going to be a judgement call. It sounds like we have agreement on the risk: it's an additional quantum of risk. If you're going to have an additional flight, that is nowhere near tolerability levels. As said at the beginning, we are not talking about doubling or anywhere near that. The number of flights that people take has to be an additional flight, but the variation of flights that you have from year to year massively swamps that effect anyway.

RM - I think we have to find common understanding for us to get to that position. The point you made about not being near the tolerability threshold: we've never claimed that our risks will breach the tolerability threshold of 10^{-3} but I would point out that just because we're not breaching the upper threshold does not mean that the additional risk is acceptable. We would anticipate any significant increase to the risk of our personnel to be challenged by our regulator.

AG - Define significant.

RM - It's a judgement. From the analysis we've carried out, we calculated that the impact on risk and helicopter transportation risk to our NUI intervention team will increase by 50% which I would consider material.

JM - How does that make sense with only 22% impact, which is a worst case scenario?

RM - That is how our analysis has calculated overall impact on flights. That analysis has factored in other analysis on available time offshore. The team has advised me on the number of additional flights that would be required each year, and I've used that as a basis to calculate the additional risk exposure for our personnel. If the analysis changes due to discussions today then mine would change.

CR - Can I clarify that this analysis is based on changing your operating model to contract additional flights to the NUIs?

RM - No, that is absolutely not the case. My analysis is based on flight impact. That flight impact is fed through by our planning team and additional flights that would be required to deliver our maintenance plan, which I have used to calculate our additional risk exposure.

RAM - I want to point out that 22% isn't worst case. We've been very pragmatic and pulled in the Applicant's assumptions so this isn't the worst case. We've tried to apply reasonable assumptions and a what this would mean in practice for us.

JM - I mean worst case in that it doesn't account for corridor or other mitigation.

OG - We can park the 'worst case'. We can accept 22% is realistic based on how you currently operate. We acknowledge that you're not accounting for the additional mitigation. So when we say worst case we're just saying there's a potential next step to which we haven't got to yet.

RAM - Yes it's the base case, but it is not worst case. We didn't use the 'worst' data although we could have.

JM - Understood.

OG - Just to confirm, you're saying that you've done this analysis based on no optimising for the work, based on the impact on your maintenance schedule of the wind farm, in order to get the need for additional flights. If so, if those additional flights aren't to optimise the work, what are the additional flights for?

SG - If we had to do all the additional flights to make up the backlog, we can't get after that because there's not enough days in the year. If the additional days could be done, that is how we have reached the additional days needed and therefore the increased risk.

JM - [I actually go in there 50% you know] because otherwise you'd have a third of the year spare at the minute, which is clearly not the case. Even if you could increase the flights, the 50% is unlikely to be [affordable].

SG - Are you looking at the point of going to all different NUIS? If so, there are 4 or 5 different NUI flights that we are talking about.

OG - Yes, I think we need to have that conversation with Dave and Andy really.

CR - Is that analysis something you can share with us Ros?

SG - We'll look at it all as a whole and we can go into it with Dave and Andy on the 365 maintenance plan to see what we can share.

CR - I'm conscious of time... Our understanding is that the safety case would not be impacted despite any change in helicopters and number of flights. Based on the principle of ALARP despite any changes in the heli-ops and number of flights, that principle would not be changed, so fundamentally we didn't anticipate that would be a change [to the safety case].

JM - Our reasoning for that is the safeguards that you have in place won't change, notwithstanding the discussion we have had on backlog. The changes you described to the safety case in relation to NUIs doesn't change anything. It hasn't changed the assumptions of the basis on which they were accepted.

RM - We don't agree. We would consider that once we reach a common understanding on flight impact, if I were to be informed that the flight impact that we have currently analysed and our NUI intervention team were to increase the transportation risk by 50%, I would say that's a material impact requiring submission to the regulator. That is a matter for judgement. There is no clear quantifiable guidance out there to help us reach that determination, but certainly that level of impact we would consider to be material.

RAM - I think what is clear is that this understanding is based on different layers of assumption and different layers of impact. I think we've got to a point where there is still misalignment on the safety case impact based on the current impact that has been shared. If we need to take this into a different conversation with the right people in the room, let's do that. Let's move onto aviation.

CR - Agreed. We request Spirit's updated comments on the clarification questions and we would like to come back to this.

Aviation

Assumptions

MP - I believe these were questions that Spirit posed after the hearing the other week. Bullet 1 and 4 really talk about the VMC case and why we think 1.5nm is enough. There are some questions on IMC plus how we've looked at the impact. This slide talks about day VMC. There are two sides to this: one, the actual distance you need to do an approach which is not dependant on aircraft type, purely on the speed. For this I've assumed the helicopter will be flying at 80 knots. The stabilisation point is

in place really because of accidents in the past where the approach has been rushed, and the aircraft has to be into the wind with all checks complete at correct power and speed. The Heli-offshore Guidance which is now being adopted into draft for day VMC says you should aim for 0.5 of a mile. CHC allow it down to 0.3 and Bond use 0.75 so we've gone for worst case at 0.75. I think both AviateQ and us are aligned in that you've got to go beyond the platform position downwind, and turn back into the wind and keep clear of turbine blades as well. All of those figures comes to 1.26nm which is what you need for worst case VMC approach with the Bond figure of 0.75 of a mile.

NB - We worked ours out at 0.5nm because that is what the current operator uses. However, this doesn't mean that the same operator will be there in a few years. It could be that another operates to 0.75. In terms of the rate of turn, yours is higher but it doesn't make much difference. Our opinion is that you've based the stabilisation point on the point as soon as pilot is out of the turn as he rolls out right at stabilisation and he has to be 100% sure that he meets the criteria as soon as he rolls out. We think that is unrealistic. The pilot needs time to ensure that they have reached the stabilisation point and meet the criteria otherwise it's a mandatory go around - as you're aware - and we feel it is a little unrealistic to expect a pilot to roll out and be instantly stable and to assess himself as such, and that's why we have given a buffer to ensure that the pilot has got time to meet those criteria prior to meeting the stabilisation point. We've also then added extra time to ensure that all pilots are able to do this whether its senior captain or junior pilot and we think 45 seconds is enough time to ensure they are not rushed and ensure they meet the criteria at that point so we think 1.26 is not enough.

OG - Would the CAA not have considered this when they came up with 0.5 nautical mile buffer? I obviously wasn't involved in the drafting of CAP76 and don't know if anyone in the room was.

MP - I was one of the authors of the guidance. It was assumed that the pilots will be using auto-pilot modes so that means they will be in the correct configuration. The aircraft will be under control and we have also factored an extra 50% buffer to take into account some of the points you've made Nigel. Approaches are being done safely now on a smaller basis than this. This is being done every day now in a safe way and it's quite clear that the CAA and their draft CAP have adopted the same guidance. We've added on the buffer (bond figure of 0.75nm) to capture worst case. So we believe we are completely compliant

NB - We are of the opinion that there needs to be a buffer to ensure those parts are properly settled. 0.25 of a mile is about 10 seconds. That goes by pretty quickly.

MP - Are you saying current operations within windfarms are not safe?

NB - That's not my opinion. We feel we need a little extra bit of time. To expect the pilot to roll out at the SAP and be 100% stable is unrealistic.

MP - I completely disagree. That's why auto-pilot upper modes are used and that is why they are trained. Shall we go round and round here or shall we move on?

NB - We can agree to disagree.

DU - Just to add here, the numbers which have been used during to our calculations have been agreed by our current helicopter provider. They agreed that the pilots need a stabilisation buffer because time flies quickly. We think our analysis is a safe distance to have the aircraft stabilised. On another point, maybe such distance are used elsewhere in NS. However, we're not talking about our operations where multiple flights are performed daily, not just one flight. We are talking about our operations with 16 legs of flights per day hence why such distance is not adequate. We disagree so can move on.

MP - Yeah, thank you. We have some more slides [on this] towards the end. Let's move on to take-off. The actual take off distance depends upon the aircraft type because each type has different

power to weight ratio. The assumptions we've used - because CPC is closest to the windfarm, we've used that as the test case - is the helideck at 184ft above mean sea level. We've used 4.8 tonnes. We have asked for Vantage data showing payloads because we assume you optimise your flights. If you are optimising your flights then the first flight from Blackpool will go to CPC1 with 8 on board because you've got to do the crew changes, which means the maximum weight it can depart from Blackpool with is 4.8 tonnes and take-off beyond that will weigh less but we have used the worst case here. We have used a temperature of 15, pressure of 013 which I think is the same as AviateQ, and the same wind speed we have applied in enhanced power graphs. This was certainly shown in our REP2-033. Now, when they did the weight upgrade from 169 from 4.4 tonnes to 4.8, they brought in advance power because, I think the OEM admitted at the time, perhaps it was a bit of a stretch and certainly other operators have begun to adopt enhanced power. I've not spoken to NHV but it's assumed that within the next five years they will do the upgrade as well. So those are all of the assumptions we've made.

NB - Can I comment on each section as we go through?

MP - Sure.

NB - I know that Denis wants to hop in on the 4800. You can jump in shortly, Denis. So those first 5 assumptions is what we used. We have not used enhanced power graphs: the 169s do not have that upgrade at this time. From our understanding, it really doesn't do much for normal day-to-day operations. It really only helps windfarm operators who are doing the hover out of the ground - it tends to give quite a bit of extra power there.

DU - Yeah so in terms of payload its worth going back to how we operate. I know, Mark, maybe without context it's very hard to map how we fly. But we have different flights for new shuttling and we have a crew change flight. We're not crew changing on the morning or evening legs, so the airport goes out potentially empty or with one or two passengers in the morning and then picks up the full payload for new shuttle deployment. So hence why we account for a full payload during the shuttling operation for a crew change flight. You're correct, the aircraft takes the full payload from Blackpool and then it goes to Central and back, so for all the new flights we account for the maximum payload and given that fuel is burnt along the way.

MP - Right, thank you. Yes we have asked for pax data which would help us but here I have applied the worst case of 4.8 tonnes.

DU - So we account 4.8 tonnes for all take offs basically for new flights.

RAM - Remember that number when we refer to worst case: that's the contractual weight for the airframe in question. It's the weight we can use, it's not the worst case. I suppose the element around the request for data, you've got to appreciate that it would require trawling through the data to share it: we don't understand what you're trying to show. We want to show the operational reason as to why the payload might not show full payload. We've got 4.8 tonnes so we utilise it. What we're trying to show by turning the conversation into how we operate is that there may be elements of that that you might be able to pull out and say 'look you didn't fly using your full payload here', but what I think is more important in all this is the operational reason as to why not and I think that's the offering we've had on the table with Denis from our first conversation in October. Let us help you answer any questions on how we operate in respect of the payload. What we're trying to achieve here is the context of we've got the 4.8 tonnes, so we need to be able to utilise our full payload here. I just wanted to clarify that.

MP - I get that point. So perhaps if we move onto the next slide....

NB - Sorry Mark, for the drop down, it's not a major difference. I think the drop down that we got was 9ft compared to your 1ft and your graph reference is S4-D15 so we were utilising S4-T which comes off the offshore and 11th Helideck supplement.

MP - This is all well, but ours is at the enhanced power.

NB - Okay, can I ask if you can supply the graph that you got that from, just because I don't have anything to compare it with at the moment?

MP - I believe these graphs were meant to be shared before the call. But yes, I've done a full scan and I believe it's planned to be shared at some point.

NB - Okay, perfect. Then I continue to take the CTO or the continued take-off distance. Agreed, it's 100. It's a clear statement in the RFM stating that it's a fixed distance, doesn't go out and doesn't take anything into account with regards to weight, altitude, temperature or wind. That's just a straight 350 metres. So I agree with that.

MP - Right, so if we could move onto the next slide please. Flightpath 1. Again, it's got the graph referenced there. The actual distance and those graphs will be shared.

NB - Can I address that one? So, in our initial submission we used above take-off surface for our calculations, and you then came back with critique on that, saying that is not how it works and it should be done above sea level. We took that on board and reviewed it and re-worked our distances to above mean sea level and then reduced distances because it is a bit of a reduction. You are stating now in our flightpath, one that you are climbing to above the take-off surface. I'm a bit confused by that, if you told us we shouldn't be using above take-off distance.

MP - No, the actual point was at what height do you make the turn? The point I meant to make was that the height applies to the point at which you start to make the turn. So you start to make the turn away from the windfarms at 500ft above sea level because if you climb to 500ft above the deck then that could put you into IMC if cloud base was on the lower limit. So the actual climb for flightpath 1 will be 200ft above helideck flight. You then do the level acceleration. You then do flightpath 2 to 500ft above sea level. At that point you start to turn and if the cloud base is high, you continue to climb, or if the cloud base is low you level off.

NB - We disagree with that quite strongly. When we talk about mean sea level, and this is where we agreed with your initial statement saying that we shouldn't be using above take off surface, it's what the pilot sees after an engine failure and he's looking at the alto-meter and that's showing above mean sea level (AMSL), so he is going to level out 200ft above MSL not 384ft. That means he is only climbing 20-25ft, depending on how much you obviously drop down, which will happen very quickly, at the 2.5% power before levelling off and then climbing the further 300ft to the normal [maximum continuous power setting.

MP - But that differs from what the checklist says. The checklist says climb to 200ft above the take-off surface (ATS), then do your checks and accelerate. If you have gears that could be raised you would raise your gear, but this aircraft has fixed gear. So that is what we've done. We've tried to align with what you did first and with the manual. Perhaps if we just jump to next slide because that shows how we compare with you. But if we sum all these figures up and, again, we've allowed a bigger distance for the rate one turn. We have taken a worst case so there's no wind effect for the acceleration phase, which in fact you would be allowed under the OPS rules. That comes to a distance of 1.4 miles. Now, if we go to the next slide...

NB - I know you're rushing through this, but I'd like to comment on each of these as we disagree with a lot of it.

MP - So are you saying what you did at start was wrong?

NB - We originally did everything at above take-off surface, both the 200 and the 500, because it states very clearly on the profile in the RFM that its ATS. After you critiqued it we took another look at it and said you're quite right, the path cannot be 200ft ATS. What the pilot is seeing in the cockpit is 200ft so we've re-worked all our calculations at above mean sea level. Both for flightpath 1 and flightpath 2, as that is how it happens in reality in the cockpit.

MP - I disagree because the flight manual talks about ATS for the first phase. Secondly, as part of your take off brief and, bear in mind for a lot of these, you would use auto-pilot so you could set those two heights above the deck, so all of those could be applied. The only point we differed on was at what point you made the turn. We said you couldn't do the climb to 500ft above the deck because you could have a low cloud base so you would commence the turn at about 500ft above the sea. That's the only point on which we differed.

NB - To my understanding, unfortunately, the profile states very clearly that all heights, regardless of whether it's at 200 or 500 feet. We either need to do everything at ATS or AMSL. In reality, AMSL makes sense because that is what the pilots are seeing in the cockpit.

MP - Yeah but if you follow the RFM, you fly above the take-off surface, you then level below cloud, you would not fly into cloud. So that is the only thing I said you should take that one point that should be AMSL.

NB - No, certainly that's what makes sense.

MP - Let's think about onshore as well because we work out altitude on onshore. Now, we would fly the similar profiles on the onshore part of the pilot's take off brief, would say in the event of an engine failure, we will fly to this height we will then do the level acceleration. We would then change down to maximum continuous power. We would then continue the height. That's all part of the pre-flight brief.

NB - So I'm going to once again disagree with that. In all the observational flights I've done over the last couple of years, not one brief has included what height to climb to. We will continue in accordance with the manual or the company requirements.

MP - The manual will set up what height to climb to.

DU - I think...

MP - Right, shall we just differ here and move onto the next slide because this compares your submission and I don't think we are actually far apart.

DU - We are talking about aviation safety here, and we shouldn't be forgetting our operational requirements. As you well know, we operate a multi-shuttle operation with different helidecks and different elevations. So we need to adopt consistency.

OG - I think this is worst case as CPC will have turbines close, so any figure that's safe for CPC would then be safe.

DU - Yes but I am talking about consistency in field as well. If we're introducing different requirements for different installations, then on the day a particular pilot may end up failing to comply with the requirements, and as you all know, we need to have a standardised approach here.

MP - I hear that point having flown offshore for 18 years but we still do a take-off brief from each of the decks. So yeah, that's a given. Now shall we move onto the next slide because this does compare the two and might be worth looking at.

CR - I'd like to get onto IMC corridor as well. Mark, if we can try to squeeze that in now.

MP - If we go quickly here - if we align with what AviateQ did and level at 500ft AMSL, we come to a distance of 1.4miles and your assessment at the start came up to 1.76 which included extra climb above helideck height, so that was 500ft.

NB - No that's incorrect, Mark. It was actually 1.84 with the helideck with 500ft above helidecks. And then it's down to 1.7 if we take AMSL.

MP - Right, now if you factor in the figures of yours and I went back to your first submission it says for flightpath 2 if you take 500ft AMSL that cuts down a total distance of 1.34. So we aren't that far apart and both of them are less than 1.5 miles.

NB - I disagree. As I said, because we've got our initial plan to 200ft and not 200ft ATS at this stage.

MP - I think you didn't take on board the actual point, which was you followed the flight manual, so you climb to 200ft ATS, you do the acceleration, you continue to climb under flightpath 2. But instead of flying into cloud you level at 500ft and make a turn.

NB - So we've basically got disagreement on flightpath 1.

MP - You are not following manual then.

DU - No, I think Mark, it's worth just mentioning here that based on that discrepancy that the take off point is at 184ft, the recalculation has been made and the distance requirements reduced from 1.84 to 1.7.

MP - The flight map manual says flightpath 1, 200ft ATS so it means you are not complying with the mandated checklists.

DU - That's where the reduction will be made so we reduced the difference by 0.14 of a mile.

NB - I understand what Mark is getting at but disagree. After engine failure you would climb to 200ft. But as we said, that's AMSL and there's also...

OG - So I think there's an action here to confirm what the manual says, because I think from a layman's term, from my point of view, it's very clear that if the manual says you do something then you have to do it. And I think Mark has set out very clearly why the calculation he's done is compliant with it. And Nigel, if you're able to look into that again and just confirm whether you're following the manual and if you're not following the manual then why not? Because I think this is a pretty black and white one to me.

NB - We've run all these things past the current operator who agrees with what we're saying.

MP - We will share the flight manual graph, so if those are shared, they do say flightpath 1, 200ft ATS, so I think you will then need to make a case why the operator is not complying with the manual. Let's take it as an action.

CR - I'm conscious of time, we've run out of time now. I would like to continue if people have a little more availability perhaps 20 to 30 minutes maximum.

IMC Corridor

MP - So, similar case applies to IMC and I don't think we should go through it now, we have done flightpath 1 to 200ft above the deck, accelerate, then climb to 1000ft AMSL, then the turn so similar case applies here. Let's move on to IMC corridor. We certainly do appreciate that there will be an impact on IMC at night for flights to CPC 1. So we looked at what would be biggest bang for buck if we were to take out a section of the windfarm. Based on the chart on right hand side which shows prevailing wind in IMC, if we could take out a section to SW then that would be the biggest help. Now of course the perfect thing would be 360 degree circle, at which point we would cancel the project as

a whole. So, looking toward SW this will be for take-off because I think we can all agree there will be 9 miles free from NE to do the approach. And I'll just stop there for comments.

DU - I would agree that the SW 225-220 is the predominant wind which is 22% of annual average wind so technically aircraft can approach from NE as you're describing. However, this needs to account for helideck orientation on CPC, wind restriction factors on CPC and obstacles on CPC. Also whilst it is 22% of the predominant wind throughout the year, what is happening with the remaining 78%?

MP - I accept throughout the year, perhaps it is 22%, but that is for VMC as well. So what we've done is look at the IMC case and it is much bigger than 22%.

DU - For everything, yeah.

OG - What portions of the year would you have reduced access? Because it's IMC. At those times, where is the wind coming from? There's a different piece because it doesn't matter in our case where the wind's coming from when it's daytime. VMC 1.5 is what we consider gives you sufficient means that you can take off and land in any direction. You only need to concern yourselves with the wind direction when the conditions are IMC. As Mark says, that is much higher than 22%.

MP - Looking at this chart on the right, of course you will lose IMC access with the wind from the SE and from the few occasions where the wind is from North because of course you can't make an approach through the windfarm itself.

DU - But it's worth adding that the operations in the IMC corridor are only applicable under current CAA regulations for take-off from CPC only - it's not applicable to Calder and it won't be feasible to operate if the CAA changes its regulations because we will still be closer than 3nm of the windfarm.

MP - Yes, that is why we have proposed the ALTMOC route and the CAA have made their comments as you saw. It's a bit soon but they certainly didn't say no. Picking up on the Calder point, if we do have this in place and you are talking about a prevailing wind from the SW, that will actually give them IMC access as well because they will be more than 1m laterally displaced from obstacles. So we've talked about CPC 1 because we see that is your biggest issue, but it does help Calder and it might help others like DP6 because it moves the wind farm further towards the South and SE.

DU - But it all depends on getting an ALTMOC and we are not aware of any granted already. How do you consider the outcome of regulations which haven't been introduced? They were not referring to any other operators. They were clear they were looking at the case and they were clear that the regulation will come at some point, either the end of this year or next year, that they're working on it. But they were not clear on how they see this will be applied and what kind of ALTMOC will be applicable to that or how other operators will be adhering to those regulations.

MP - I'm certainly aware of at least one operator in the North Sea that is looking at an ALTMOC for an existing windfarm and their platform which is 2.5 miles away so that will be the tester case I'm sure.

DU - I don't know how they can look at it without regulations in place now. At the moment, there are no requirements for an ALTMOC etc. What they can do is apply an operational restriction through their OPS manual. So at the moment, and based on the aviation provider forum, the providers all came up with the 3nm and our provider adopted that already. Some of the operators may have done the same, and that's where they are potentially considering lowering that 'requirement'. But there are no actual requirements for an ALTMOC right now, so we can't use it as base case.

MP - There are two operators in the North Sea that are doing IMC approaches to decks within 3nm of their windfarms.

CR - I think this comes down to the co-existence point, and the need to look at solutions to challenges in respect of having energy producing assets next to each other. I think that would be expected by government and that we look at those solutions in good faith because as you know that is what's needed.

RAM - I'm sure we can appreciate that looking at precedent, you know, we need to look at this on its own merit. My understanding is that the CAA was in a place where it needed guidance from operators. We believe that the operators came up with 3nm as a conservative view. There was challenge on whether it should be more, so I think that uncertainty around the number and also drawing on precedents, it doesn't mean that just because someone else has deemed it safe it is safe. You know you see in history something happens and then you know everyone revisits regulations and legislation. So I think there just needs to be an appreciation of that pulling across mitigations. That may be, you know, deemed acceptable at the time that they may be outdated.

CR - Understood, I think the CAA guidance, you that's sort of general industry guidance. I think obviously we are asking here to look at this case and we are also asking you for lower limits and that guidance sets out the point regarding the IMC corridor. I don't know, Mark, if we can clarify, but I think we understood this mitigates about 62% of IMC access.

MP - Yes that's on the next slide. If we take into account the approach and the take-off is done exactly into wind and sometimes you can fly out of wind which would increase access, this gets you back 62% of IMC based on the flights that were flown.

DU - I think it was assumed in this that it's in conjunction with the proposed arc coming to 62.9%. However, I think internally we couldn't replicate that.

SG - I'm struggling to understand where 62.9 comes from.

MP - In the data, the wind arc allowed from 220 clockwise to 090 in daytime IMC conditions, mapped onto the flights that you have made - and we do give a full breakdown in our reps - from that it came to 62% of the flights that could have gone ahead at the time they were planned, so we've not allowed for flights to be moved or slipped. So that would cut down the day IMC impact from about 5.8% to 2.2% so a lot less than it was.

SG - I think you noted something on one of the earlier slides about it only being in certain wind conditions or you've only looked at certain days that had those wind conditions, or was it looked at all days and then looked at the percentage of days that had those wind conditions? What was the baseline?

MP - Yes, it looked at all of the data that we had from you and said which of these 10 minute blocks were IMC and of those, where was the wind from at that point? So that is where that wind rate came from.

OG - Essentially, the weather that causes the conditions to be IMC is associated with certain wind directions. Obviously, the prevailing wind coming from the SW means it's more likely that the weather in those conditions is such that you're in IMC. So that's why it's not 62% at all, it's only 62% of those occasions when you will be in IMC. So that's perhaps the step you didn't have. When you look at the whole arc, because obviously what we're saying is for the majority of the time it's day VMC, there is no need to consider the corridor and to consider the ALTMOC because you would still be flying in what we consider 1.5, and you will appreciate there's still discussion to be had there around whether it's 1.5 or 1.76 but that is that, and that step you perhaps hadn't done which is to realise that when we're talking about the corridor we're looking to mitigate the weather from a particular direction.

SG - Then what we're saying here is that's on 10-minute slots, so it's saying that's 62% of the 10 minute slots of wind coming from certain directions.

MP - Yes 62% of when weather is IMC.

CR - As I understand it, weather is foggier when coming from SW. So the visibility would be worse and therefore you'd be in IMC more often.

DU - No, I think there is more weather is coming from this direction, hence why the percentage of fog here is higher than other directions.

JC - Can you confirm what degrees in the circle you are counting within the 62%?

MP - From 220 clockwise to 090. Those are our approaches which keep you outside the red buffer. That arc gives you 1nm lateral clearance from the windfarm which you've got to have for an IMC approach or take-off.

DU - On the basis that no regulations come into place.

OG - Of course, yeah.

MP - No, that is the current and hard rule which the AMC will not change. So you will need at least a mile clear.

JC - For that range I got 47% in IMC?

MP - Have you included night? I've got a separate one for night?

JC - Yes. I've just done when the heliport is open when our model says it's IFR and I've again summed up the 10 minutes. So we got 47% on that.

MP - Oh right, you've mixed day and night there.

DU - I think it's quite valuable discussion around IMC as well and potential regulation change, but there is also an element of night where night has its own requirements for approaching the installation. And also the take-off is the same but approach is different. I think the main key factor for us here is subject to the new regulations. Where you know, if it comes into force, and as we heard from the CAA it will in one way or another, then we're already sitting in an environment where there is a wind farm next to us and we are unable to operate without an ALTMOC which we may not be granted because we don't even know how to approach it and there is the element of trying to work out how we can deem it safe to operate at night or even night in IMC.

MP - I get those points. If you look in our REP2-032 that does have the same wind rows but for night as well because we've split out day and night. Can we move on?

SG - I think it would be useful if you could provide us a bit of that background as I'm still unclear how you come to 62% and what that's of. So rather than us going and breaking down the reps and maybe coming up with the wrong answer, it would be useful if you could actually point us to that background. I don't understand how this corridor mitigates as much as you say it does, so if you can help that would be much appreciate.

MP - Sure, perhaps the best way is to flag up bits in our reps that explained this - Denis you had your hand raised.

DU - Yes, another element as we're talking about 220-090 is around how we physically take-off into the winds from the other direction. If we need to overfly the windfarm, which we cannot so I think there are several elements to the arc North to CPC which is used in conjunction with the corridor where the aircraft, you know if it goes along the path of 040 going down and take off in the corridor is one story, but if we're approaching from the North maybe we can then take off into the wind farm or vice versa, we cannot approach from the windfarm direction to use that unobstructed arc.

CR - Can we just conclude on the IMC action here? We will share this pack and supplement with some commentary on the assumptions and then perhaps Denis and Jonathan to review and respond. If you have a counter analysis or additional assumptions that you want to feedback, we'll take that on board and can review that.

SG - I'm still struggling to see that this does exactly what it says, so if when you're providing these if you can provide the background and the explanatory notes to show us how you substantiate your finding, it would be really helpful because I am not seeing that this does what it says on the tin. Please help us understand.

VMC Buffer

MP - The last question in the bullets was 'please explain where 1.5 miles is deemed safe for day VMC'. We've put together a list of examples where 1.5nm is already being used. The third bullet down was an NUI and working up over the Whitehaven and Rhyl wells which I believe are yours and there were turbines 1.3 miles away. So that's perhaps something you've done in the past. We've talked about NHV not wanting to fly close to wind turbines but they've picked up work for windfarms elsewhere in the North Sea and they've won some on this side of the North Sea and I think about two weeks ago they put out a press release saying that they intend on doing windfarm and O&G work, so I think perhaps if Blackpool team were to tap into larger group they might get a steer there and perhaps have some of their fears allayed.

DU - I think the examples are not comparable here to our operations. The examples here were Rhyl which is subsea wells and we have own commercial agreements with Walney windfarms. This is your process as you described and we cannot comment on Harbour types of operations. We don't know the content there as we don't know what kind of operational requirements, what kind of commercial compensation agreements they have, that's why we cannot really comment on that. We're looking at our own specific operations where we conduct more than 1000 flights a year. We conduct around 5000 landings a year, not 100 to 200. So it's a different scale of operations and aircraft types and that's where we're looking at our own specific operations against the specific wind farm. So hence why for us it is impossible to comment on such types of operations here.

MP - I take those points but the fact these flights occur on a daily basis within a distance of less than 1.5 miles means they are safe.

SG - So for example, Rhyl doesn't happen on daily basis - it's sub-sea wells, there is a rig there from time to time. So it's not on a daily basis. It's not like what we're doing in our operations as Dennis was describing. But I think the point of this slide has been slightly missed. And I think the point we asked for you, for the Applicant, to explain, was how you get to the assertion that you think 1.5nm is a safe aviation buffer. To explain that it's been done elsewhere in different sets of circumstances: these aren't similar to what we are doing here, so we're struggling to see how 1.5nm is a safe aviation buffer based on all the information that we've talked about today with what Nigel's discussed, what we've all discussed in various meetings. It's just really if there was something that we're missing, if there is something that you're doing other than pointing to other people doing it. Can you really get behind what you deem safe to understand why you think 1.5 is a safe aviation buffer for Morecambe Bay hub operations? That's what we're really looking for. So I think this slide sort of missed that ask a little bit.

MP - I think there are two points here. First of all, is 1.5nm is safe enough for an aircraft to approach and land and then to take-off? All of these cases show it is because if it's not safe they would not be approved.

DU - In day VMC.

MP - Yes, as if they are not they wouldn't be approved. The second part is the bit that DNV addressed on the impact on your shuttling operations. This is a different question, I think, but purely from an aviation point of view, 1.5nm is safe for a helicopter to approach and depart. The answer is yes, because if not the CAA would have stopped all of these.

RAM - I think it's back to the first part about the 1.5 being safe. We would like to see an answer that doesn't just point to precedent. Just because there hasn't been an accident and it's been deemed safe in other circumstances where that distance was deemed to be appropriate, what we're trying to get at is rather than pointing to others who are currently doing it, what makes it safe? I think that's the bit that we are missing and I think it's a little bit to the safety point in the DNV report as well as we are trying to cut through precedents that keep being thrown at us and actually, based on the material in front of us, our operations and our airframe, why is 1.5 enough? I think we put forward standalone information we could have pointed to operations where there's a wider buffer. I think we need to cut through each of these and see why it's not like for like.

OG - We spent 15 minutes going through those calculations at the start.

MP - Yes, and this loops back to the point on flight manual graphs and we will send you through the full scanned copies now with that.

RAM - We haven't seen those.

MP - We will send them through.

DU - I think just to point out here that we're talking about the isolated environment of the VMC operation. We're not talking about night VMC operations, we're not talking about IMC and night IMC as well, which are also having a detrimental impact on us. So, we're talking purely about the isolated environment of a good day of flying with visual. But that's not the way we operate. We operate throughout the whole year in all conditions.

OG - It is the majority of times when you're flying.

CR - It's well understood and I think you know we're trying to address both the visual conditions points here. We have also discussed IMC conditions and IMC operations. We want to get closer to shared understanding of those topics. I think to the safety points, you know we do see this as precedents and industry. We know precedents take a view here because you know safety is a subjective matter and you know, I think we can only look to industry best practise to make reference to what is considered safe. So I think that's where we draw parallel to precedents and that's where both the safety case and the aviation topics have to look to industry best practise as a guide to what is considered [safe].

DU - Yeah, but with some of the precedents there are no operations taking place at all. So like Walney Extension or Harbour Energy's Johnstone wellhead - there are no operations here.

MP - Perhaps we can do to the next slide. This shows a jack-up working out over the Blythe and NHV were flying to this from Norwich.

SG - Again, it's a jack up working over a wellhead. It's not operations like we've got in the East Irish Sea, so it goes back to that same question.

OG - We had quite a long conversation about the calculations where Mark pointed out the calculations he's done that demonstrate that 1.26 is the safe number taking account of the CAP as currently written and not adding any additional requirements that aren't supported by the guidance and using the flight manuals that are a requirement, correct me on this Mark, that the operator follows. So we spent quite a bit of time at the start of this section on aviation explaining why we got to a number that is below 1.5. So I think we've covered that off in terms of why 1.5 is safe, because

we've done the calculations. We're just giving you the additional comfort by sharing this precedent which supports that calculation that we've done at 1.5. So I think the 1.5 has been well covered earlier on and obviously, I take it that there's an action for us to provide a bit more information, but it's very clear from the calculations that we've done that 1.5 is a safe distance.

SG - Okay, let's just point out that that is your opinion, it's a distance that we, Spirit, don't agree is safe. Neither does our aviation expert. So I think that on that, we need to point out that we're both in disagreement on that and remain in disagreement based on today's conversation because I didn't hear there to be anything that told us that we were incorrect in our calculations or incorrect in what we were doing. We are semi-aligned but there are different distances for different parts of those calculations that Spirit disagree are adequate enough in your calculations. I'll let Nigel speak to that, but that's my summary of where I got to.

NB - I agree with what you said, Susan.

CR - Maybe just to try to summarise some actions for the way forward here. As I understood it, from our side we will share those calculations including the graphs and request for Mark and Nigel to review that again to see if there is further clarification for the 1.5 and confirmation on the calculation for 1.5.

RAM - Can I just say on the 1.5nm, in response to Oliver's comments, it's still not clear to us. We've come back and we've challenged ourselves to really get behind [the calculations], it's almost the inner workings behind the scenes [that we need]. This is how we've got to [ours], and we've added a lot of guidance material so anyone could pick up our numbers hopefully and not have to be in the weeds of the technical detail to understand it. What we're asking is for you to return the favour and talk us through that to the point of not having to be an aviation expert to understand the point and cutting through the precedence. The ask here isn't just to deem that it's enough - it's not enough. There's a real desire to understand where those numbers come from. So if you could please take that away in the context of this meeting.

CR - Thanks Rae-Anne, that's understood. We'll work to clarify those numbers and the references that support these. The second point I'd like to capture is in reference to the IMC corridor and the analysis that supports that with a view to help you understand our 62%, and your understanding of 48%, and all the associated assumptions around that, operational or otherwise. I think it would be a helpful exercise for us to pursue that and get a closer understanding.

DU - Just maybe with a caveat recognising that this is [only] applicable under current regulations.

MNZ

CR - Yeah, understood. Regarding the earlier safety conversation, I don't recall having any explicit actions. I think we've captured that discussion, we've noted that in the minutes of the meeting and both sides will reflect on that and come back in the next submission. We do want to capture diary slots to have a follow up discussion on decommissioning and MNZ and bring experts together and walk through our positions.

DU - I think there is a discussion around looking into operational impacts from the asset perspective with Andy and Dave as well.

SG - Just on decommissioning, I'm looking for dates Oliver but it's been really difficult. Looking to be earliest first week in March but not confirmed yet. I'm just managing expectations, so you know about when that's coming. If it comes soon, it's the middle of March and that's all I can do.

OG - I mean for both of those, we feel that it should be quite easy for us to agree protective provisions for decommissioning and MNZ or not relatively easy but compared to some of the others, so if you're able to share your drafts of the project provisions for those two interactions then I think

that would still be a benefit to have a meeting, but it means that it's less urgent because obviously at the moment MNZ doesn't have anything in the provisions because we simply don't understand what you're asking for and you know, in that instance, you're the agent of change. You know, it's really for you to work around us, but obviously we're willing to be a good neighbour, to try to put things in place to support that project where we can. But yeah, we haven't had that information. So if you could share those protective provisions then at least for the MNZ piece that would mean we don't have to have that meeting quite so urgently.

SG - We can work that into the protective provision conversation at the right time.

Protective Provisions

OG - On that, is there any update on sharing protective provisions? Obviously what we've said in the submission that we're submitting later today is that we haven't had anything yet and we're still working on them. So if you're happy, if you're not going to share anything today, then we will just make that point again to say you know that we are still engaging on it.

RAM - When we discussed this last week, the view was that you wouldn't appreciate a draft mark-up on the day of submission. So we've worked on that basis and I'm sure you can appreciate there is still a conversation around elements of the PPs. You know some of the marine bits, the designation of 'owner', the types of things we discussed in the hearings. But given that we're still poles apart on some of the material asks, the content will be as good as the technical discussion, so it's unfortunate. We're in a place of the protective provisions will need to come when the time is right, when we understand what the asks are.

CR - It would be really helpful if we could already get outlined provisions with square bracketed terms so we know where we are in terms of framework and then both points to clarify and get closer on because I think there's points of difference, but there's also understanding your position on all necessary elements.

RAM - So I suppose because our submissions have been so full, in our view we've been able to communicate what our requirements are, albeit not in the protective provision forum. So I think that the asks should come as no surprise in terms of what we're looking to put to paper. I know there's nuance in there in terms of legal drafting, but I suppose you know the technical conversations have had to take priority. So I think we need to work out what is in the camp of there being alignment and there being some marine elements which you know have been consistent throughout our reps, there's not really much that the protective provisions will open up. So the ask has been heard from the ExA but we need to be in a place where we're able to actually have a substantive conversation around protective provisions and we have worked on the basis that you wouldn't have appreciated a mark-up today on the day of submission. So we will pick up at the right point but we've had to prioritise these conversations which I think have gone some way in at least trying to kind of funnel the issues in the areas of misalignment. I think we've made the asks in a different forum, albeit not through the vehicle of protective provisions yet. Lastly, given that the protective provisions came in largely not in an alignment with the asks that we've made, there is a lot of work to do in the protective provisions. It's not just a couple of changes. So I think we need to have a think through how piecemeal we come back on the protective provisions. But the conversation is in hand, the ExA was heard loud and clear, but the technical conversations needed to take place.

CR - Okay, I suggest we can conclude the call.

**APPENDIX B: Agenda of the meeting between Spirit and the Applicant on 18th
February 2025**

**Meeting Agenda for MOWL & Spirit Energy Shared Understanding
Aviation and related impact Meeting
Meeting to be held on 18 February 2025 on Teams**

Location		Teams Meeting	
Time		09:30 – 12:00	
Participants:		Name	Organisation
		Christopher Rowland	MOWL / Flotation Energy
		Oliver Gardner (via teams)	MOWL / Flotation Energy
		Mark Anderson	MOWL / Xodus Group
		Alex Guild	MOWL / DNV
		John Morgan	MOWL / DNV
		Lucy Campbell	MOWL / Anatec
		Susan Gair	Spirit Energy
		Rosalyn Masson	Spirit Energy
		Laura Taylor	Spirit Energy
		Nigel Blackstock	Aviateq
		Denis Ustich	Spirit Energy
		Rae-Anne Marr	Spirit Energy
		Jonathan Clarke	Spirit Energy

Agenda:	1	- Introductions	
	2	- Intention and Purpose of Meeting by MOWL - Intention and Purpose of Meeting by Spirit	
	3	Safety - DNV to talk through findings of their reports and considerations as a result of the update safety analysis by Spirit shared on 13 th Feb; - MOWL and Spirit to step through remaining points of difference;	
	4	Aviation - MOWL/Anatec to share: o 1.26nm calculation o Calculations for IMC o Further explanation to assist Spirit to understand MOWL position that 1.5nm is a safe aviation buffer - MOWL/DNV/Anatec impact calculations: o Update on latest impact analysis from Anatec; to be shared in the meeting; o Considerations/clarifications from MOWL/DNV to the latest Spirit analysis shared on 13 th Feb.	
	5	- Way Forward and Next Steps	
	6	- AOB	

Item	Key Outcome / Action Items	Org. / Person Responsible	Due

**APPENDIX C: Transcript of the meeting between Spirit and the Applicant on 18th
February 2025**

Transcript

18 February 2025, 09:37am

● **Oliver Gardner** started transcription

OG **Oliver Gardner** 0:06

Think a bit slow. There we go. OK. Right. So thank you everybody. Thanks for attending. So obviously we'll sort of do the introduction first, then we'll hand over to yourselves. So Oliver Garner, the consent manager for for more commercial Wind Farm Limited. Chris, do you want to go next?

CR **Christopher Rowland** 0:23

Yeah, Chris Roland, commercial manager from Wind Farm Limited.
Sam.

SP **Sam Park** 0:30

Yeah, Sam park.
Senior project manager on the Morecam project.
Who's next, Edwin?

OG **Oliver Gardner** 0:39

Actually, do John and Alex is there together.
I'm here guys, I think.

MJ **Morgan, John** 0:47

Yeah, yeah. Morning, everybody, John Morgan, senior principal, DMV in Aberdeen.
Support and flirtation on the safety aspects.
One and everyone know it's good senior principal, DNV, based nobody.

CR **Christopher Rowland** 1:04

Thanks and.

OG **Oliver Gardner** 1:04

I'm Lucy and marks are gonna go next.

LC Lucy Campbell 1:07

Yep. Hi everyone. Lucy Campbell, principal risk analyst with ANETEC and we're supporting with our helicopter specialist Mark Pryor on the helicopter access.

MP Mark Prior 1:17

Oh, hello. And I'm Mark Pryor.

CR Christopher Rowland 1:23

I think I think we can hand it over.

To South Susan.

SG Susan Gair 1:28

Yeah. So, good morning. I'm Susan Guerin. I'm the principal commercial specialist for the Spirit Morca media and I'll hand round to Ryan next.

RM Rae-Anne Marr 1:38

Senior legal counsel at Spirit Energy supporting the TCO process.

I'll hand to Dennis.

DU Denis Ustich 1:46

Morning, everyone. They should stick logistics manager for spirit energy and it go it to Laura.

LT Laura Taylor 1:52

Hi, everyone. Laura Taylor, Aviation coordinator at Spirit Energy and I will hand to Johnny.

JC Jonathan Clarke 1:59

Hi, I'm Johnny. I'm senior portfolio analyst at Spirit and I'll hand over to Roz.

RM Rosalyn Masson 2:06

Good morning. Rosmussen for spirit energy and the technical Safety Technical Authority, and I'll hand to Nigel.

NB

Nigel Blackstock 2:14

Yeah, I'm Nigel Blackstock. I'm the aviation technical advisor for Spirit energy.

CR

Christopher Rowland 2:21

Great. I think that's, that's all of us and thank you very much everybody and thank you very much again for joining the session this morning.

I'll just shortly put the agenda on the screen that we just have a short.

Refresh on that one.

And.

Firstly, we'll just set out sort of the intention from both sides for the for the meeting today. Then we'll step into safety.

And review the.

Clarifications and comments. Let's say from from our side to the safety impact assessment that we provided on the meeting on the 13th.

And then to also step through any remaining points of difference.

As a result of that.

Then we'll step into the aviation calculations in a little bit more depth analytech, which they're updated analysis and updated assumptions on the calculations that they've provided.

And then we'll have a sort of, yeah, general discussion around the.

Implications of those aviation assumptions and and how that may?

Tie back into the updated spirits analysis.

So if that's OK for everyone, then proposed to start with the intentions.

So I think from from our side.

For for us, we, you know, we very much see this as a continuation of the shared understanding.

Meeting that we had last week on the 13th with a view to.

Gain sort of a closer alignment in terms of both the aviation assumptions, but also the safety implications as a result of that, I think to date we have respectively put forward alternative approaches and.

Calculations and and and numbers. We'd like to get to to the bottom of those differences, and we'd like to understand what makes up those different assumptions and then further to that, I think we, we'd like to, you know, clarify and again close alignment on the implications and the impact of those assumptions regarding the

safety impact and the safety assessment.

So I think that's the two main purposes for the meeting from our side.

And you know, of course we see this as a critical step to getting closer together in terms of what a solution can look like and how these two assets can coexist in a, you know, safe and practical way.

So I think that's that's our intention here.

SG

Susan Gair 5:19

That's great. Thanks, Chris. I think I think it's a very, very similar intention, but it's side. So again continuation of the the shared understanding meeting that we had last week.

The the two key elements that we're really keen to understand the differences on are the, the, the safety assumptions and the aviation assumptions to really understand what it you know what it is that's driving the the difference of opinion because we're we're still quite far apart in terms of these.

As we said said last week.

We operate a spirit under the strictest of regulatory frameworks for good reason, so safety is a concern. We have significant safety concerns with the the proximity of the wind farm to the infrastructure. The biggest concern is it leaves in tolerable impacts that spirit can't actually compromise on.

We're really concerned with how with how we find a way forward through this. So the starting point is exactly what we've been doing last week and this week and we appreciate taking the time to do this with us is to really try and understand where those differences.

In assumptions or opinions are so we can actually have a level playing field of a shared understanding. So then we can see if there is a possible going forward. So so it's it's I think I think we're both aligned on that intention for for the remainder of today. So appreciate that.

CR

Christopher Rowland 6:39

Yeah. Great. Thank you. Thank you, Susan.

Then perhaps if we could step into the first topic, item 3 here on safety.

And.

I think you know, for ease, we perhaps summarised some of the clarifications.

To to your safety analysis.

Here and we can perhaps step through those.
Initially but.

MJ Morgan, John 7:08

Alright. Do you want me to? Do you want me? Do you want us to come in?
More on the agenda item than the specific comments here. Initially that might be.

CR Christopher Rowland 7:19

Yeah, that would that would be helpful. Thanks, John. Perhaps if you can, if you can initially comment.

SG Susan Gair 7:20

Yeah.

MJ Morgan, John 7:21

Yeah, I mean.

Yeah, I think there is quite a lot of common common ground between us, obviously. We fully understand and support people within the regulatory framework that's been mentioned that fully aware of safety critical elements and the requirement to maintain, to maintain them, safety cases etcetera, etcetera.

I guess a little bit of clarity for everybody here. Alex Knight and not helicopter experts. We're so we're just dealing with the the pure safety side under item 3 here. Probably the the first point which I think if we're talking minutes, we can maybe specifically minutes and agree on of a number here is that clearly if you can't go out to a platform to carry out maintenance and.

You do nothing to mitigate that. That effect will just gradually build up and up and up. And clearly the the backlog that you face will just increase and increase and increase.

And that is obviously an unacceptable situation and I think we, we'd 100% recognise that you've raised it with your working hours and now assist which I I think is a good way of looking at it.

And I think that's a very easy point for us to agree on that. If you have helicopter flights that are not available, you do nothing to mitigate that.

The number that are not available just gradually builds up. You're not able to do some maintenance and eventually that will become some sort of unacceptable

situation, completely agreed.

I don't know whether Spirit wants to add anything to that. Presumably possibly not. If we're just agreeing with you.

RM **Rosalyn Masson** 9:14

No, I would definitely welcome your recognition of that position, John.

MJ **Morgan, John** 9:15

It.

Yeah, and thank you. And I, I guess maybe I'm not going to go through the detail of our our report, which you do have had for a little while.

There maybe wasn't explicitly mentioned in there because it maybe just wasn't felt that was a need to.

The the second point that's maybe worth making, which does come out in our report, is that.

Any one of those or number of those cancelled flights or delayed or delayed flights? Are also counter to that, not critical.

If I need to do maintenance on a particular item of equipment the exact day that I do it is not critical.

I don't know exactly how you arrange your maintenance system, but many maintenance systems are arranged with float involved that I can do that the safety critical maintenance in a certain window, or maybe aimed to do it at the beginning of that. But I'm actually perfectly free to do it up to the end of that floatate floating, I could say floatation window floating window.

And it's a common process to to also think about potential deferrals as well.

Obviously, you don't want to do it, but there is that, that process in place.

I would also say that probably hopefully the second point of agreement that it is that any particular flight being cancelled or postponed is not an issue in itself.

It's only if that builds up over a massively long period of months that it becomes an issue. Is that also something that spirit would understand and agree to?

SG **Susan Gair** 11:00

I think I think I'll let Ros come in on on some of the technical aspects and that. But I think in terms of the, you know, the ability to switch around maintenance and and you know if something if something needs cancelled and you need to reinsert it

something later on, I think that that's that's how we operate now. I think what we're saying is with the flight restrictions, it's such a restriction that there's nowhere for us to put all of this.

So you know it's, you know, it's common process to to have deferrals. It's common process for a flight to be cancelled and you have to put your maintenance schedule somewhere else.

MJ Morgan, John 11:30
Yeah.

SG Susan Gair 11:35
What we're seeing is we're already working within that common process. There's nowhere else for us to put all these additional restrictions that we would have, but I'll let Ross come in with more detail on that. She's probably more of the expert in the room on this than myself.

RM Rosalyn Masson 11:52
OK. So on on your first point there, John, I can definitely agree with you that. Simply rescheduling a flight to a different time.
Has no impact whatsoever on risk exposure, however.
We are very concerned with the overall.
Impact of the flight restrictions and how many additional flights?
Will be required to execute our maintenance strategy.
But it is good to hear you touch on the fact and acknowledge, in fact, that.
If deferrals build over time, that is an issue and that is a real concern for us in terms of risk exposure.

MJ Morgan, John 12:48
Right that that. Thanks Ross.

RM Rosalyn Masson 12:48
So yes.

MJ Morgan, John 12:53
I think I think the summary there is that we're we're probably agreeing that as you

said, any individual flight which I assume we're talking to nuis here, new is here because in terms of maintenance on cppc one, obviously you have the entire crew there and other than some very specialist elements where you need to maybe fly those in for specific jobs, that probably the vast majority of maintenance people don't need to fly anywhere, they just need to walk across a bridge.

Through a module.

And what have you? Is it just just to clarify, it is the newest that we're talking about in relation to maintenance, is that right?

RM Rosalyn Masson 13:31

I would say that is my primary concern. However, we do have some concerns in relation to the execution of maintenance strategy on CPC and I'll illustrate that, for instance, much of the maintenance and certainly quite a lot of the much larger. Maintenance interventions that we require do require support from specialist vendors.

So if we have flight restrictions impacting our ability and introducing delays in getting these specialist vendors mobilised to CPC, that has the potential to impact the execution of our maintenance strategy on CPC, because these specialist vendors are booked well in advance.

And if we miss an availability window?

It could be many months before we are able to reschedule.

That activity.

RM Rae-Anne Marr 14:39

And when that, you know, draws, that's exactly what I was. I was away to see when I came off mute there. And so far as when we're talking about our cancelled flight or our deferred flight, you know, it's OK talking about that in the space. They would be spirit personnel, spirit jobs. But actually we are, you know, we have to contemplate the nuance in that and that it's often third parties and you know it's not quite as easy as getting them out the next day. So yes, there that that doesn't quite have the same. Prolonged, you know, period of time for there to be an impact that can be really quite quick if we're waiting months after a missed slot.

So there is a lot of nuance in so far as how we how you know you operate off offshore in that space.

MJ **Morgan, John** 15:20

Yeah, sure. And I guess that happens already, doesn't it? I mean, I've been offshore and stuck for an extra day or two due to fog.

Or storms, take your pick. You know the specialist vendoring that we do is obviously not maintenance, but it's comes in a similar category. And I guess this is just another another factor that has to be considered in that that never, never or ever changing.

RM **Rosalyn Masson** 15:32

Yeah, yeah, yeah.

MJ **Morgan, John** 15:44

Array of people going going offshore.

So yeah, understand that that as well and I guess it is.

It is another factor that changes the availability of people to keep it offshore. In the case of the nuis.

RM **Rosalyn Masson** 15:57

It's not coming.

MJ **Morgan, John** 16:02

The safety critical maintenance goes overdue to the point you feel you can't operate, then surely you would shut in and the problem then becomes not a safety issue, it's a commercial issue.

SG **Susan Gair** 16:15

I think the point is there is not to get it to a shut in area. You know it's we've got a maintenance plan to maintain the asset we've got. We've got the requirement to maintain the assets. So we can keep to put people on the asset. And the key is to not let it get to the point that it's burdened so much with a backlog that we have to shut it in.

MJ **Morgan, John** 16:39

It is.

RM Rosalyn Masson 16:39

We we can certain we could certainly not accept.
Restrictions that back us into the corner of requiring to shut down our newly assets every time we want to go there, that's not an acceptable position for us.

RM Rae-Anne Marr 16:57

And can I just be clear it is.

MJ Morgan, John 16:57

There's no.

RM Rae-Anne Marr 17:01

Can I just ask is there is the suggested mitigation against safety that we would just shut down operations?

MJ Morgan, John 17:09

Yeah, I don't. I don't think it is. I mean, my colleague here is merely pointing out that, you know, many, many of these aspects can be commercial issues, not directly safety issues, you know, because either the risk can be removed or we alternatively there's other ways of mitigating said risk. You know, for example, even just significantly more helicopter flights in the in the summer, even another helicopter in the summer, even another way of doing the maintenance. I mean I think.

Once one agrees, as we minuteed that an individual flight is not an issue, it's the fact that if this thing builds up over many, many months and you don't have time to.

To do the maintenance that's now now slightly later, that's the only time it becomes an issue, but that can be mitigated.

RM Rae-Anne Marr 17:56

Well, I'm. I'm sorry. Just, you know, a proposal. You know, we've obviously got obligations as a reasonable imprudent operator. I mean, shutting in isn't isn't a mitigation. That would be, you know, we could factor into our day-to-day operations, we've all we've also got obligations as an operator that wouldn't be in keeping with that. So I think that you know if if we could try and park the suggestions for mitigations and allow us to, you know, inform you as to what, what, how we operate.

MJ Morgan, John 17:56
By.

RM Rae-Anne Marr 18:24
I think that.

For me it's could, you know, we could say, well, we could just depart the industry if there's a safety concern. You just don't, you know, produce oil and gas. I mean that's, that's where that argument runs. I mean, if it's not safe, you just don't do it because it's commercial. But you know that that isn't something that could possibly be adopted by an operator offshore. So maybe if we could keep the mitigation to kind of real real life, I mean, what we're talking about flying offshore, additional flights, I think that we can we can revisit the analysis that was shared. But I think back to Susan.

RM Rosalyn Masson 18:51
Alright, thank you.

RM Rae-Anne Marr 18:56
Is we've we've run quite a lot of analysis about the impact and although we're referring to a single flight cumulatively, we've been able to evidence the the impact of that and there aren't enough days to add additional flights. So maybe we can get into the the detail around that, but I'd urge just to you know, to focus on the impact rather than mitigations that are in real life examples.

CR Christopher Rowland 19:21
Yeah, I think I think that's well, well, well noted. And one of the superian and I think you know we.
I'd like to to come into that conversation about the the time offshore model and the the safety impact and the maintenance strategy. So I think we can come into that shortly.
I would just ask perhaps.
Dmb team, if there's any other elements that you'd like to sort of bring up now.
As a sort of, you know, wider kind of response to.

To to you know, both the safety impact assessment or to highlight from from your previous sort of report.

MJ Morgan, John 20:02

I mean, I guess just going back to our report and all the various correspondents and all the various submissions, it is the.

Only issue from spirit, the one of maintenance of the nuis.

RM Rosalyn Masson 20:15

No, absolutely not.

We have.

MJ Morgan, John 20:18

I'm sorry, I I I with helicopter distances and stuff is is that the the issue that you have at the moment?

RM Rosalyn Masson 20:27

You know, we have three main areas of significant concern.

That stem from the flight restrictions.

One being.

Our ability to access our preferred means of evacuation.

The second being yes, the maintenance of our SEC in an appropriate and fit state.

And the additional helicopter transportation risk that would be imposed.

Our newly team, through the significant number of additional flights they would be required to take to execute the the maintenance strategy.

MJ Morgan, John 21:12

In the case of emergencies, it's unlikely you're using commercial air transport. Even if you can do a helicopter evacuation, it's more likely to the SCR helicopters that operate under CARP 999.

RM Rosalyn Masson 21:25

I strongly disagree with you, Alex, and we have prepared a detailed response to your report and I'm more than happy to go through the key points of that in this meeting. If you would find that useful.

MJ Morgan, John 21:42

It might be helpful if we're at the report first.

RM Rosalyn Masson 21:46

OK, that will be that will be within our submission today.

SG Susan Gair 21:52

I think I think it's worth highlighting the key. The key points of concern, Roz, if we can go into those because I think I think it's it's I think it's worth notice. It's worth noting. So obviously you know.

RM Rosalyn Masson 21:56

Yeah, I can do that. I can absolutely do that.

SG Susan Gair 22:04

We've, we've, we've, we've, we've read the report and we've had some, you know, various internal discussions. So this is, you know, we've had the report for a while now. So we've we've looked at it in depth. So this isn't isn't just a, you know, a knee jerk reaction on 1st read or something. You know we've we've looked at this in detail and I think it is probably worth you know Frazz has highlighted the three key areas of concerns it's probably worth you just given a couple of you know a quick summary on each of those three key areas.

Because it's we've got the experts in the room that wrote the report. So it's, you know, it's it'd be good to understand. It's part of that shared understanding. You know, if if you if you read we've got some key comments on that, if you've got disagreement then let's let's talk about it. So we can try and see if if there is a common ground we can reach.

RM Rosalyn Masson 22:47

OK, so my from my reading of of the report.

I would summarise what I took from that as your possession, being that helicopter evacuation would be unlikely to be successful and that lifeboats would be much more likely to be used because of a helicopters are a slow.

Response.

To an evacuation event and the Haley deck is likely to be impaired through smoke or thermal radiation, and so on. Is that an accurate summary of your position, Alex?

MJ **Morgan, John** 23:34

I was saying as the helicopter evacuations unlikely and the three reasons for that one's the the fact that commercial air transport helicopters generally aren't used for the vacation unless you've got a very long week time and what's going on, it's more likely to be SAR. The second one, helicopter capacity 170 pob and an HC helicopter. To evacuate everyday would take somewhere between about 18 and 24 hours, but my calculations and the third one is that in most cases, if there's an event ongoing, the helicopter wouldn't come in.

Because of smoke, possibly because of heat, or if there's an unignited gas release there, craft wouldn't be able to approach anyway in case it gets gassing gas into the engines. So what I can say you can't rely on helicopter evacuation.

RM **Rosalyn Masson** 24:25

OK.

OK, I will come to each of those points in in turn there, Alex.

So we we know it from your report in in support of that position that you've just outlined there, you offered some examples.

And those examples being paper Alpha, Ocean Odyssey, Mumbai High and Deepwater Horizon, which you obviously consider are representative examples of what we would experience as an evacuation event on CPC.

Is that correct?

MJ **Morgan, John** 25:11

That we gave you.

RM **Rosalyn Masson** 25:13

Yeah. So.

I would be interested to hear why you consider.

MJ **Morgan, John** 25:19

It.

RM Rosalyn Masson 25:20

Piper Ocean Odyssey and Mumbai high to be and a deep water horizon to be representative of the situation we would face on CPC because certainly from my position where I am sitting, the likelihood of successful evacuation from CPC is much higher.

By helicopter than with any of those examples you've given.

MJ Morgan, John 25:48

There are examples that were given because.

The ones that come in knowledge when society the second reason that the toy rods when what's your point on CPC is specifically is it?

RM Rosalyn Masson 25:55

OK.

OK. So specifically, I'll, I'll go. I'll go through them. So you haven't made any reference within your report on the bridge link design of CPC. You've made no reference in your report on how that might improve the prospect and likelihood for a successful helicopter evacuation.

You've made no reference or mention of the the role of our temporary refuge.

In preserving life, and indeed the design of CPC that places that temporary refuge quite some distance from the process hazards.

All this to my mind, adds up to an asset that is designed to improve and increase the likelihood of a successful helicopter evacuation over and above the design of the examples you gave in paper, Ocean Odyssey and Deep water horizon.

You've also selected Mumbai high as one of your examples. Now Mumbai high, as I'm sure you are aware, was a particularly catastrophic initial event.

In that case, now are you suggesting that that event on Mumbai high, which was particularly catastrophic, the initiating event is representative of evacuation events on CPC? Because I would certainly argue that it is not generally representative.

Of the events that would cause us to want to execute an emergency evacuation from CPC.

MJ Morgan, John 27:46

In Mumbai, hi. Whether it was catastrophic initial event or not, it's irrelevant because

the weather was such that helicopters wouldn't have been flying. And that's one of the reasons I've included it.

RM Rosalyn Masson 27:56

K That's that that that is, that is a valid point. However, I will offer and we have mentioned in our submission of the 22nd of January, the example of rough. Which executed our successful helicopter evacuation in response to what I would consider to be a massive fire event.

And that asset like CPC?

Was a bridge link design.

And much more representative of the situation we would be faced on CPC. Do you have any thoughts on that?

MJ Morgan, John 28:37

Yeah, firstly, it wasn't a must if event it was settled nature, but the safety systems worked and limited the size of the release. The same point as the helicopter didn't come in until the event was effectively over. And if you look at some of the witness statements from the the rough event, there was some of the guys managed to evacuate from the.

The father most platform, which if I remember rightly was a wellhead platform over the central platform where the event was occurring and back into the temporary refuge, something that they couldn't have done if the fire had been rigid because it would have been badly burned. So the time just let me finish. By the time the helicopters get in, the event was effectively over and.

RM Rosalyn Masson 29:16

I can.

MJ Morgan, John 29:25

They.

RM Rosalyn Masson 29:28

The event was not effectively over John.

Or Alex and can't quite see which one of you said that. So yes, some personnel evacuated from the central jacket to the wellhead platform over the bridge link and

evacuated from there by lifeboat. The event was still ongoing when people were being evacuated from the temporary refuge.

By helicopter.

I have other examples of successful helicopter evacuations.

That I will include within our submission today.

But I think that's a very good example of.

How much more successful a helicopter evacuation can be with the type of platform design that we have on CPC?

And you've had made no recognition of that within your report?

MJ **Morgan, John** 30:33

So you intending a vacuum using commercial air transport helicopters from Blackpool?

RM **Rosalyn Masson** 30:37

Yes, yes.

MJ **Morgan, John** 30:39

They're they're going to send roughly.

RM **Rosalyn Masson** 30:40

As part of our as part of our evacuation response.

The Mayday would call upon any and all resources available to us.

MJ **Morgan, John** 30:51

There's a couple additional points I would make if there is a fire on your processing platform and smokes drifting back over your accommodation platform. Helicopter vacations is not credible, so your best bet would be to sit in the TR and sit out the event and bring in the helicopters later when they were needed. And you can use SCR helicopters on commercial air transport. At any rate the commercial. Air transport helicopters, likely to be bigger than the 8 seater that you've got in Blackpool.

RM **Rosalyn Masson** 31:27

That would certainly be one of the options under consideration by the OIM, but

there are other options available to us. For example, we have a secondary heli deck on DP1 that could be utilised in the event that the primary heli deck on AP one was impaired. We also have to consider how events can escalate over time.

So yes, the TR would provide us with protection.

For for a period of time, while we considered our options for evacuation and manage those in a controlled manner.

RM **Rae-Anne Marr** 32:09

I, you know, obviously I'm not an expert in the room, but just to take this conversation up a level because I know that we can look at case studies. I think the point is that there are case studies that fit, you know, the the report and also there are circumstances that support the report. But I think fundamentally, you know, they are if if the IT depends on the, the the incident it it depends on the instant whether flights would be commercial aircraft would be an option.

DU **Denis Ustich** 32:10

Yep.

RM **Rosalyn Masson** 32:14

Yeah.

RM **Rae-Anne Marr** 32:37

And I think our concern is that you're taking away that option where it could be utilised and I think that that's, you know, maybe the base case understanding that we need to share here is that of course if we trawl through history, there will be examples that that we could put forward. But we need to look at this in the round and not cherry pick the information if that circumstance wouldn't fly, yes, OK. But we can then put forward circumstances where they would fly.

And that isn't cutting through the the understanding for me. So if we could, you know, have that conversation at a level accepting that there will be, there will be precedent and there will be circumstances that fit the report, but that isn't reflected. Of of the of the circumstances that that we're facing and there there's a concern, a real safety concern, that there's an opportunity to get our people off as fast as possible and that would utilise commercial aircraft, but we couldn't do it as a direct result of the impact on this from this wind farm.

OG Oliver Gardner 33:36

Gets to flip down its head, though. There needs to be a recognition that there will be circumstances where you can't use commercial air transport already for a number of reasons, depending on the type of incident, depending on the weather conditions you know if, if an event occurs.

At a time of night when Blackpool Airport is closed, you cannot use the commercial air transport. If an event occur. Can I finish Ryan? And so it's just to flip it on its head to recognise that there are already circumstances in and situations where you wouldn't be able to use, you know, commercial actually maybe your preferred means of evacuation.

But it's the preferred and, and I assume Roslyn that you do have other options available depending on the type of incident and and and, and that decision will be made on a case by case basis, you know.

RM Rosalyn Masson 34:20

Yeah, I I would. I would. Yeah. So sorry, Ryan. Yeah.

RM Rae-Anne Marr 34:23

Yeah, I was just going to say before, before you answer that, Rosen, we're happy to do that. I think that it's constant turning, flipping it back on us. I think what we're looking for here is we're more than happy to look at this balanced and you'll see from our impact analysis, we haven't just used worst case scenario to try and paint a picture. I think we've introduced balance and reasonable days and actually looked at the data, what we're looking from from your side is an acknowledgement of the wider loop.

RM Rosalyn Masson 34:27

Hmm.

RM Rae-Anne Marr 34:51

Not through the lens of OK, if the circumstances were against you, you wouldn't be able to use it anyway. If we could just, you know, start from there and then we can move on. But what I would like to hear is that there's an acknowledgement that the the case studies and the circumstances being discussed are simply those that fit the

narrative of the report and that there are wider circumstances whereby commercial aircraft could be utilised but wouldn't be able to. And of course, Oliver would already, you know.

There are already elements operating offshore with helicopters where you're constrained.

Etc. As you've pointed out, but I would like to start from that understanding and then we can take on to, you know, the question you've posed back to us. But can we recognise that piece first please?

CR Christopher Rowland 35:40

I think I think my my take my take away here is that you know we we had a key assumption in, in, in the analysis that evacuation under commercial aviation transport would would not be a sort of preferred or or primary approach. I think you know what we've learned here is that it is a preferred.

Means of vacuation.

I think there is still, you know.

We can, of course, discuss all day about how likely that would be in any particular incident or scenario that this is an unknown effectively, and it will always be a case by case.

Basis on which that that means can be can be used and that will always be a decision by the asset or the IM at the time of of an event. So I don't think that's something we can conclude on, let's say, but. But I do think we you know we are we do recognise you know that.

Evacuation by cat, you know, may may be used.

If if it were.

MJ Morgan, John 36:43

I think the key is is prefer the the can't be relied on obviously for the numerous reasons that may or may not may or may or may not be applicable to the actual event or the weather that's involved or Blackpool at night or what have you. So yeah, I mean clearly it's it's preferred, it's your normal way of getting on and off the platform. It's a helicopter that might be in the field or already it's the preferred way of getting it getting on and off.

We're sort of debating how likely it is that you actually are able and can and will use it in in anger and that.

They slightly reduce as a result of restrictions from the the wind farm. I guess is that. Significant.

We think not. We've we've not seen any specific data from yourselves that counters that.

RM Rosalyn Masson 37:31

Or you agree that the flight restrictions do reduce our access to our preferred means of evacuation.

MJ Morgan, John 37:39

If you state the commercial helicopter as your preferred means of evacuation, which I believe most people probably would, that is true search and rescue other facilities.

Sorry, other Flight Facilities will not be affected in the same way.

If your preferred is stated to be search and rescue, then no, it is not affected.

CR Christopher Rowland 37:57

Yeah.

But I think I think we also still dispute the fact how likely that preferred scenario is. I think we still have a point difference about.

How likely?

And that.

Preferred means of escape or evacuation may be may be used in reality, but I don't think that's something we can reconcile without further data.

RM Rae-Anne Marr 38:22

And I and I think that that, that's no and I think that's why I was trying to take that conversation up a level because we can, you know, we can both come up with examples and circumstances that in this occasion we would and then we could hear back go on this occasion. You wouldn't. And I suppose we could spend the next you know, two hours doing that. But I think that regardless of your view of of impact I mean.

It it's irrespective to the point of there would be circumstances where we could use. Commercial aircraft for emergency, you know response and would be unable to and I think that that's the key message that we're trying to get across here. And yes, we can point to scenarios where that wouldn't have been the wouldn't have taken place

or wasn't possible at the time. But that's what we looked at in the you know, in the case merit and we can obviously counter that with other examples. But actually I think the points perhaps been lost in the exchange of case studies. But we're happy to do that.

OG **Oliver Gardner** 39:21

I think you know it. It's it's acknowledged, you know, the presence of the wind farm. You know, we have acknowledged that the presence will lead to some restrictions to certain circumstances and to to the availability of of the operator to undertake commercial air transport and so that therefore is is any time that you need to use helicopters. So whether it's for a shuttling to a newly bringing vendors out to the C to CPC or to to take people off in, in the event of an emergency. So I think, you know, we obviously recognise that this there.

A special circumstance that says just because it's an emergency, you know that the commercial and transport can now fly and when previously they couldn't. So I think you know we.

RM **Rae-Anne Marr** 40:01

Well, and I think that the distinction here and that's that's you know that's helpful. Oliver. I think the distinction here is that it's how likely that would occur. We're never planning for emergency scenarios. You know there isn't data that you can look back at. So I think that you know that would be a worst case scenario as as an operator offshore. So you know it's not on the, it's we're we're not of course there is measures for safety risk and you know we we've hopefully been able to demonstrate that in our submissions to date.

And our submission that's going in today. But I think the key point here is that you know how likely that will be, it'll depend on the emergency scenario and it's not something, thankfully that would, there's too much. You know there's too much examples of giving the magnitude of the the hazardous industry events. So I think let's if if we're happy to move on to the next point, I think that's been a good conversation.

Ross.

MJ **Morgan, John** 40:58

Just one final point. We're all assuming that these emergencies happen now that at

night that an IMC.

Because that's the only time the wind farm would create any restriction on commercial lip transport.

RM **Rae-Anne Marr** 41:13

Yeah, I think what we're seeing is an emergency scenario doesn't wait for daylight. It'll occur when it occurs and we would need to respond when we need to respond. So I think that we're we're dealing with, you know, you know that's that's the factor here it's you know, we can't, it's not something you can hold off on as you go when you have to go.

MJ **Morgan, John** 41:21

Then it's stupid, yeah.

No, that's one of the reasons as SCR cover available.

OG **Oliver Gardner** 41:32

But.

Yeah, I think I think it comes back to the point that that that yes, as you say, you know, we could go through lots of examples. But the point that Alex was was trying to make perhaps was that, you know, there are different levels of of emergency and different.

Which call for different responses and and and in those you know responses where it is a you know a an emergency where you do need to get everyone off incredibly quickly then then the ultimately you know SAR or the lifeboats would be the would be the the correct means of evacuation in those instances where there is an evolving situation that you perhaps is more time to evacuate people.

Then obviously that is when you would go to the to to the commercial air transport and that's when you potentially have that longer period of time. So just because it happens, you know starts the event starts occurring at 4:00 AM and it's still dark. You know you can wait a few hours for the light to then start vacuum. So that's I guess what we're trying to get across there is that.

RM **Rae-Anne Marr** 42:27

Well, well, let's talk about Sir. I'll hand over to Roz for that because I think that's a key

point in terms of our our understanding and the SAAR space. So, Ros, if you don't mind.

RM **Rosalyn Masson** 42:37

OK, so if we were in, we had a scenario offshore where the oim felt there was an immediate threat to to life.

He would initiate that evacuation process immediately. He would not wait for daylight to to start doing that.

Now, whether or not there are commercial air transport helicopters available to us.

There are times when they won't be available, but we cannot.

Base our response our.

Objection to your wind farm on particular times of day or night, as Rihanna said quite clearly and eloquently, when we need to evacuate, we need to evacuate. So.

If we had commercial air transport available to us, we would utilise them. We would call in SAR, we would utilise any and all means available to us.

Evacuate the people from that asset as quickly as and safely as we could.

So.

And we would continue to use helicopter evacuation for as long as we had an unimpaired heli deck.

CR **Christopher Rowland** 43:52

Yeah.

RM **Rosalyn Masson** 44:01

That could be that could be an hour, that could be two hours. I'll. I'll bring Dennis in.

Yeah, I think, yeah.

SG **Susan Gair** 44:01

See Dennis.

DU **Denis Ustich** 44:02

Yeah.

SG **Susan Gair** 44:06

Thanks Ross.

DU **Denis Ustich** 44:07

Yeah, I think just war fighting here, that there are three aircrafts positioned in Blackpool.

RM **Rosalyn Masson** 44:12

Mm hmm.

DU **Denis Ustich** 44:14

Where two of them are contracted to spirit and we we have also ability to call off on all available contractual means from Aberdeen and Norwich where the aircrafts will be available at CPC already within that one hour. If they will depart from Britain for example. Also worth mentioning that if we're doing evacuation, whether it's emergency or not, non-emergency, nothing is stopping us of evacuating people to nearby facilities.

Including ENI facilities S from us.

Where instead of taking people back to Blackpool and and spending another like 15 minutes to go there and back, we can drop off people as at newy's, which will be collected later on or at man facilities at ENI, which will be a Year 5 minutes away from CPC. So. So there there is no solar reliance that you know there is one aircraft which will go Blackpool CPC or back, no.

RM **Rosalyn Masson** 44:57

Yeah.

Yeah.

DU **Denis Ustich** 45:12

Will use evacuation in the most efficient way and dropping people within the nearby facilities.

RM **Rosalyn Masson** 45:19

Absolutely. I totally agree with you there, Dennis. And as I say, we would use helicopter evacuation for as long as we had an unimpaired heli deck and an unimpaired TR. We would consider lifeboat evacuation to be a last resort, and it's not a decision on Oim would take lightly.

CR Christopher Rowland 45:40

Yeah. Thanks. Thanks, Wilson. Thanks, Dennis. I think I think that's that's well understood. One, one question maybe is is to understand of those aircraft available. You mentioned 3IN Blackpool and then Aberdeen and Norwich will are they available to fly at night or are they only on day operations?

DU Denis Ustich 45:59

So availability is based on the airport opening hours, so we have a contract with the airport which allows us to extend the opening hours based on overtime provisions within the ETC and Fire Brigade. So.

Demanding of our aircrafts allows us to operate.

Outside the normal hours, 7 to 9 and again with ability to extend the airport hours, we can operate within the wider window.

CR Christopher Rowland 46:31

Yeah, I guess I'm thinking in it.

DU Denis Ustich 46:31

And of course, you know you, you you will be calling off all the resources and then burning required over time, allowances and all the required the working hours of the pilots, engineers and traffic controllers as well.

CR Christopher Rowland 46:44

Yeah, I guess my question is in an emergency situation, you know unforeseen event. Is do you have the ability to call off in the middle of the night, those those crews and pilots or is it until the opening hours that they're able to do that?

DU Denis Ustich 47:00

So so we have provisions for extended airport hours and we, as I said we we have a contractual agreement with Blackpool airport for providing us with the services. So we can call on on them and of course based on availability, the airport will be open.

MJ Morgan, John 47:20

If you do have an emergency in the middle of the night, presumably you've got to

call a aircraft staff to open airport staff to open the place. You also need to bring in flight crews who?

DU Denis Ustich 47:31

Yeah, it's also. So they all stay stationed in Blackpool, but I think you know there are multiple scenarios and will happen when it will happen and we will use the resources available at that point of time. For example, if the event will start to occur, I know 7:00 at in the evening or 9:00 in the evening. You know, airport will be open through the night. You know, if it will happen 4:00 in the morning, then it will be based on availability of the resources at that point of time.

CR Christopher Rowland 48:04

Yeah. Mark, do you want to have a comment here?

MP Mark Prior 48:07

Yeah, yes. And I told all of the the comments made, but I I think it it's worth making the point that if if a major incident did occur, then the MCA would become involved. You would get a helicopter.

Both from.

Prestwick and and.

Caernarfon and there are also plans in in place.

For one of the Irish ones from Dublin, so you would within in the space of.

Day within in about an hour you could have have three saw machines on.

In in place and at night, because of course they have have a longer reaction time that is likely to be about an hour and a half. So there.

Will be much, much quicker than than flying in in from Norwich or some other site.

So I I thought I'd just check that into the mix and and of course there's Alex has said.

They do not have the same.

Restrictions based on on on weather or at night.

DU Denis Ustich 49:34

No, I would agree with that, mark. However, as it been outlined before, the business and the YM will use all available means to start evacuating the platform and will be commercial air transport, will be SAR and we will have the whole emergency team mobilised within our office as well, providing all necessary resources across all

available contracts and bases.

So so that again will be all dictated by the event.

SG **Susan Gair** 50:11

I think that's a really. I think it's a really useful conversation. I'm going to propose that unless there's any more questions or comments on that that we move on to the the maintenance second. So they would also another two points to make on the maintenance secures and increase of individual risk. I don't know if there's any more points on the aviation conversation before we we move on.

CR **Christopher Rowland** 50:35

We we would like to step through the calculations, Susan. So I don't know if you want to do that first or if we do that after the maintenance.

SG **Susan Gair** 50:41

Yeah.

RM **Rae-Anne Marr** 50:41

I think that.

I think we stick with the agenda. We do that after Safety's concluded. If that's if that's OK.

CR **Christopher Rowland** 50:46

Is.

RM **Rae-Anne Marr** 50:52

I mean.

CR **Christopher Rowland** 50:54

Yes.

SG **Susan Gair** 50:55

Hey.

RM **Rae-Anne Marr** 50:57

To the Minutes tie in with the agenda because I think these are all full under item 3.

SG **Susan Gair** 51:05

I think it's probably worth going on to the the maintenance elements first. I mean I'm, I'm I'm sure it's not probably such a long conversation as the the the first parts have been, but I think it's worth stepping into it and then you know taking a call if we're if we're spending too long on it because like like yourself I'm keen to to get to the calculations. So I don't think we should leave the meeting without doing that, but I think it'd be good if we can step into the you know the the second part of the safety conversation.

CR **Christopher Rowland** 51:35

Yeah, no. Understood. Well, let's. Let's let's do that.

Perhaps then we I'll I'll just put this one on the screen. It's our clarifications to the impact and safety analysis.

So I shared this through.

In the e-mail yesterday, we've we've added one more line item here and 13.

I don't know if you're if we're able to step through that now.

SG **Susan Gair** 52:08

Yes, I think it's probably worth straws given an overview on on the maintenance maintenance key points. And then I think that this, this could maybe flow naturally into that we we could probably have some answers in the room ending that we don't have. We'll definitely take away and have a look at especially the the slide 13 and it is the new one as well. So let's let's step into to draw those key points and then. We can tick off some of these as we go along to keep these in mind.

RM **Rosalyn Masson** 52:39

OK. Thanks. Thanks Susan.

OK. So on on reading the the report.

What you've said in there.

Couple of statements that that I do disagree with.

That sekis feel safe, and you've also said that Sekis have built in redundancy, and I'll

come to ask, you know.

You know some.

Some clarification on that shortly, but you've also within the report you seem to be trivialising the role of inspection and testing.

In the management of major accident risk and again you've made quite light of deferrals. You've made reference to industry standard risk assessments and the the kind of the thread through all of this.

And certainly you know what, what a reader could it take from that is that you're implying that it's really not an issue if we defer these activities. It's not an issue if we have a second impairment because we can just do a risk assessment.

And in any case, you know sterCUS feel safe and have built in redundancy.

Would you like to clarify your position on that?

MJ **Morgan, John** 54:12

Add some detail to what you're saying. I mean, clearly not all sectors fail safe. If one has. I don't know, a PSHH or something that that will that will fail safe. If you have a deluge system. Many elements of that won't fail safe. For example, if you have a hole in it or blockage of nozzles, clearly that's not a fail safe.

Scenario I think our main point was that.

For many seconds, a failure of that Sequi will actually lead to either a shutdown of the installation or a situation that can be managed in terms of you knowing about it and it being able to deal with it.

I would also some secures have redundancy, some secures won't have redundancy. Clearly we don't know the details of your installation. It would be typical for example certainly on Cppc probably not the newest. For example to have redundancy in relation to deluge pumps.

Probably on both you have redundancy in relation to the gas detection. If you lose 1 gas detector, that's probably not an issue. You have to lose a number of different gas detectors. Or when I say lose I mean not working for that to be an issue or likewise for the maintenance be to be delayed on them.

I wouldn't make light of doing or as I certainly wouldn't make light whatsoever of an impaired Seki. I don't think we do in the report at all. I'd probably refer to the conversation we had 45 minutes or so ago is that.

A cancelled flight. A short deferral.

A bit of maintenance that you need to delay is not an issue which I think we all

agreed, but if you if you have that scenario and do nothing about it for months on end months and months on end, then clearly.

Has become an issue and it becomes an issue of being able to manage that deferral process, so not manage the deferral process, manage the process of doing your maintenance maybe at a slightly different time, bringing more people in at a different time or whatever that is, which can be managed by who knows more flights, a change in the arrangements between maintenance on cppc or the notice or what have you.

So no, our report doesn't make light of all that it.

RM **Rosalyn Masson** 56:32
OK.

MJ **Morgan, John** 56:35
The second idea is the fact that an individual deferral within a reasonable.

RM **Rosalyn Masson** 56:40
OK. So you would agree with me that deferrals?

MJ **Morgan, John** 56:47
Not impossible to imagine that you weren't there for the entirety of November, December, January, for example, that would not be an outrageous model to have.

RM **Rosalyn Masson** 56:47
Each defer.
OK so.

MJ **Morgan, John** 56:56
Does that answer your question, Ross?

RM **Rosalyn Masson** 56:58
Part partially thanks for that.
Thanks for that, John. So you would agree with me that deferrals carry with them a certain level of risk and that a second impairment carries with a certain level of risk.

MJ Morgan, John 57:17

Of course, Psychi impairment does the 18, the OA guidance, second impairment is obviously not the same thing as maintenance 1 does not. You need to have the failure in the 1st place that you need to then react to it's I discovered independent of that or a part of. So I would say that's a slightly different issue.

RM Rosalyn Masson 57:18

And it's hard, yeah.

K.

OK. So we're we're we're agreed that sekki impairments increase risk. So what about deferral of sekey assurance activities? Do you agree that they also increase risk?

MJ Morgan, John 57:53

They may in some cases in some cases they may not.

OG Oliver Gardner 58:04

And again, we're getting into hypothetical sort of scenarios here again as we did with the helicopters of you know, we could, we could sure we could point out an individual piece of equipment that you could defer, we could potentially put out something that you couldn't. I mean you know without going into knowing the full detail of the status of every piece of equipment on every NUI, I think what we're trying to get to here is as we've established at the beginning, it's not, it's not that an individual piece of work has been deferred or delayed.

CR Christopher Rowland 58:05

But I think this is.

MJ Morgan, John 58:05

I don't know it.

It seems there seems to be slightly.

RM Rosalyn Masson 58:10

Well.

I don't.

Yeah.

CR Christopher Rowland 58:19

For for.

RM Rosalyn Masson 58:19

Yeah, I I don't think, yeah.

Yeah.

OG Oliver Gardner 58:32

Or had to have, you know, be put off. That is the issue.

You know, you acknowledge that at the beginning it's not about the individuals and and maybe I think what we're pointing out in, in, in the response is you know is to point that out is that it's not individual pieces of work that caused the issue. It's that build up over time and and and I think what you know we acknowledge that at the very outset of this you know that it's.

RM Rae-Anne Marr 58:53

I suppose the individual.

RM Rosalyn Masson 58:53

OK, so all of.

MJ Morgan, John 58:55

But I'm gonna make it. Maybe John, Holly directly to that 22%, I mean, your analysis were things that the last slide that you give has.

22% just being added in year on year to be I guess 110% after year five which is but I would be.

In terms of that 22%, that assumes that you can never recover. It takes no account of the corridor in place. It takes no account of the 14% of the time that you are flying.

But don't go to any of the newest.

And he also doesn't take account of for example, I think you've you've taken 7 hours as a minimum visit to a new eat for example, I think it was DP8I might be wrong there where the number of or the percentage of visits in December above that time

was somewhere about 1520%, a very, very low number. So you know that that percentage could be reduced by for example considering six hours considering 6 1/2 hours.

Considering flying on the days that you are able to fly and previously didn't go to newest, but going to those newest.

RM **Rae-Anne Marr** 1:00:05

Can I just, John, we can, we can.

MJ **Morgan, John** 1:00:05

So your analysis lies on that 22% being irrecoverable and clearly that becomes an issue as it mounts up, but we're maybe pointing out that there are ways in which that number could be considered to be lower in the 1st place and also could be reduced by catching up or doing different analysis.

RM **Rae-Anne Marr** 1:00:11

Can I just?

And I just respond to just a couple of things before we move on to impact, because I think there is quite a few things that we're we're happy to discuss as we were last week on the impact analysis, I think yes, the statement around flights and one flight, but I think our point back to that was we're referring to, it's only an issue and you know, John, you said it's only an issue if it's delayed by months, that could be in the case of a specialist vendor. So I just want to clarify, when we're talking about the one flight we're referring to.

Spirit personnel being able to fly the next day not referred to flights that may be deferred and we might need to take the next slot, which could be, you know, a couple of months in time. And yes, of course it depends on what the what the flight was set out to do, what work needs to be done, the type of maintenance that is nuanced in that. But I think the the, the understanding we were wanting to get from that was that our circumstances where we'd impacted. So I think that's I think we've got that without getting into the the weeds on examples so.

I think that was our right point to kind of move on from that. But I just want to clarify in relation to your your statement there, Oliver. Our view on that and we're happy to get into the impact analysis here. You know, obviously you'll appreciate that quite a lot of work goes into running a model and getting, you know trolling through the

flight details and pulling in you know, time offshore. But hopefully you know when we defer to if, if you want us to go through the, the, the model that we did last week, Johnny's here to answer.

Questions, but hopefully what will come through from that is that we've pulled real life elements into this. This isn't hypothetical. We didn't shoot for a period of hours that, you know, we couldn't justify. We factored in waiting on flights breaks, etcetera. You know there this is a real life model of our operation. So hopefully there will be some acknowledgement there that yes you could say we'll just shave half an hour off of that but this is good working time that we currently operate with.

And as you'll appreciate, a maintenance scheduler, our plan it's it doesn't have enough scope to just factor in a 22% you know loss, there aren't enough days in the year. So maybe as a starting point if it's helpful, I know appreciate DMV weren't in the room last week, but we can we can talk through the 22% and and get into the the assumptions behind that if it's useful for for this session.

SG Susan Gair 1:02:49

I think there's just one point I'd like to make on that beyond before we decide which we were going to go forward on. This is just, you know, cognizant of time and we've got, you know, we've got the aviation sections do and we've already gone through this last week. You know if it's helpful for DM vs understanding on certain elements, that's that. That's good to do.

RM Rae-Anne Marr 1:02:53

Yeah.

MJ Morgan, John 1:03:09

It.

SG Susan Gair 1:03:10

You know, we can. There's there's a couple of, you know, things that you threw into the room room there, John. And you know that obviously indicates that we we do need to, you know spend a little time and.

Talk through how we did it and what we've done and what we've based it on. For example, you know, you say we only fly to a certain UE and certain percent of the time. But I think again that goes back to the conversation that we had last Thursday

on how we operate, how we run our maintenance plans, how we operate all our new ways as one maintenance plan in our annual 365 plan. Again, we don't have Andy McDonald here to talk to that in the room. You know Ros and Dennis are you know very much aware of this, but the expert is is Andy.

I don't know how we want to to address these specific questions. We saw all but one of them yesterday when you sent them through, there's, you know, two or three that were sent off to the teams to answer. We haven't got results yet on those, but the couple of you know the first few are in line with that conversation as to how we got to the 22%. So I don't know, do we want to take 5 minutes and discuss that? Is it something that we want to go over again?

I'm. I'm open to see what what you think just and all of our on that to what you think would be more useful.

CR **Christopher Rowland** 1:04:23

Yeah, I would like to really spend 5 or 10 minutes at least just to get a first response on these clarifications.

If it's OK and then I think we can move into the aviation discussion.

In more in more detail.

SG **Susan Gair** 1:04:39

OK, OK.

CR **Christopher Rowland** 1:04:39

But I would. I would like to hear your responses on on these specific points. I mean we have touched on these in, in, in the general conversation, but I think just you know, if we could explicitly get get a sort of response that that would be helpful.

SG **Susan Gair** 1:04:52

And then just and before we go on to that, I just want to check how do we how do we concluded on the the conversation around the sort of maintenance seque?

Have we concluded on that, Roz, have we, you know, have we have we shared all our points or are there more to share on that? I'm just trying to work out do do we finish that? Go on to this. Do we go on to this go back to that what is how is what's the best way to run through.

Reviewed any further points to make draws.

MJ Morgan, John 1:05:21

Just a comment from.

I mean, I guess these are the points that the end of the meeting is to agree, isn't it on the various elements?

I guess from our point of view, having looked at the presentation that comes up with 22%, we've got no reason to doubt that.

I think we're just reflecting some of the other bullet points up here that that number changes significantly if the corridors taken into account, it may change significantly if you consider days that you can apply that you currently don't go to newest.

It may change significantly if you consider, for example, just a six and a half hour working day instead of seven, for example.

And that means that you know you can then achieve the maintenance that that you need to such that this is an operational inconvenience rather than a safety issue.

SG Susan Gair 1:06:15

So no, so I think, I mean looking looking at these questions, I think we can we we've already we've concluded that it's not an operational inconvenience it it it is a true safety issue because we can never regain that 22% back.

OG Oliver Gardner 1:06:26

I don't. I don't think we've acknowledged that. I think you've stated that and and and.

MJ Morgan, John 1:06:31

You could again with three months in the summer, so it is clearly an operational issue, isn't it? Is that not?

SG Susan Gair 1:06:37

Sorry I didn't catch that John.

MJ Morgan, John 1:06:40

Could you not regain all the time by an additional helicopter for two or three months in the summer, for example?

SG Susan Gair 1:06:49

So I think I think we've been very clear that we were clear on this last week as well in the rooms that we're not looking, we're not looking into mitigation proposals at this point in time. So we've looked at this and we've looked at the 20% lost time and we've.

MJ Morgan, John 1:06:52
Is.

SG Susan Gair 1:07:06
We've we've shared the understanding that that this is going to create us a massive backlog as we go forward, even within a number of months. So within the first year.

MJ Morgan, John 1:07:12
But if it isn't isn't, there's not. Isn't this not the way to look at it? Because if I have a, if I have?
An issue or or something rather and do nothing about it. Well, clearly it gets worse and that's what all you were saying here.

SG Susan Gair 1:07:26
The point we're making is we can't. There's nothing that we can do to do about it because there was not physically enough days in the year to fly extra helicopters, extra NUI teams and on extra days to maintain all the newies to to the point of actually keeping that backlog under control.

CR Christopher Rowland 1:07:45
But but I think I think.

MJ Morgan, John 1:07:46
OK. Well, I mean we we dates are available to send it to us DMV, but we can't see that one way or the other at the moment. You know it's not possible for us to comment on whether that's the case. What we can comment on is that 22% would be very significantly reduced if the IMC corridors taken into account if you could fly to New Zealand that you currently don't fly or even if you account for for example, 6 1/2 hours working instead of seven.

JC Jonathan Clarke 1:08:14

Right. Can I step in on this, Susan, and then I'll start talking about this.

MJ Morgan, John 1:08:15

So it will.

SG Susan Gair 1:08:16

I'll let Joni come in in some of the analysis parts and then, yeah. OK. Let's take it over from Johnny.

JC Jonathan Clarke 1:08:22

OK, so I'm just gonna sort of touch on some of the points that have been made as well as the bullet points on here. I think it'll be useful just to clarify what again, we mean by time offshore what the analysis is actually trying to do. I just want to reiterate, this was a historic analysis. So we looked at the last five years of the NUI flights, we looked at the time between the first new flight on the day, the last new flight on the day we measured that time.

We then applied the new wind farm flying restrictions, which in this case was known IMC. No night, no wind, the restricted wind sectors.

That brought the times of the helicopter flights in or accelerated them. In some cases, it might have led to a cancelled flight and then we re measured the time available. So the point of this analysis was to say if we were trying to operate as we currently are in the last five years, but the wind farm was suddenly there, how much time would we have lost on the flights that we did fly? So that is what the 22% represents.

MJ Morgan, John 1:09:17

Yeah.

JC Jonathan Clarke 1:09:25

That is then the challenge that we then pass on.

And the challenge which we've been confidently talking about, which cannot be fully absorbed and therefore leads to a maintenance build up a maintenance backlog building up now a couple of other points you were making was about, oh.

MJ Morgan, John 1:09:41
So if they come.

CR Christopher Rowland 1:09:42
So can we? Can we just pause there? I mean I think.

MJ Morgan, John 1:09:45
Analysis.

OG Oliver Gardner 1:09:49
Sorry, John, you're breaking up a little bit. I don't know whether you've got a connection issue.

CR Christopher Rowland 1:09:58
I'd just like.

MJ Morgan, John 1:09:58
Yeah, we do.

OG Oliver Gardner 1:10:02
It might be Chris. You wanna come in? Yeah. Chris might be. You wanna come in?

MJ Morgan, John 1:10:02
Can you hear us?

CR Christopher Rowland 1:10:04
Yeah. No, I mean just just to acknowledge, Johnny, Jonathan that you know, I think we we recognise that. I did want to clarify, you mentioned that you've applied the new restrictions. Our understanding is that you haven't included the IMC corridor.

JC Jonathan Clarke 1:10:07
Yeah.
Yeah.
Yes. So that 22% at this time when I did that analysis does not include the IMC

corridor. You did ask in this point, you know, how quickly would I be able to reassess that? I've not been able to reassess the impact on the time offshore.

There is a small reduction in some sensitive flights that are impacted, so remember this is different to the time offshore. This is just the new the number of flights we're saying impacted there would be a small reduction in that, but not enough to really reduce that 22% by anything major.

Thank you.

Yeah.

SG Susan Gair 1:10:55

It's just we just got this last night in dream yourself, Chris. So. So obviously, you know, we need to mobilise the the team to to get that run the whole way through. But we're not expecting it to be a massive impact because it only impacts a a small segment of the impact, the IMC corridor only ident only addresses a very small part of our actual impact.

MJ Morgan, John 1:11:11

Oh yeah.

CR Christopher Rowland 1:11:12

Yeah, so, so we, we we we would we would like to come on to that shortly in the aviation discussion, I think we'll we'll just Park Park that right now but but for you know we we believe this is a considerable value to you and to your accessibility we would obviously like to verify that and if we cannot verify that then I think it's it's something that we we need to consider further in detail but but yeah notwithstanding that point on the IMC corridor.

SG Susan Gair 1:11:19

Yeah, yeah. Let's pack that for then. That's good. Yeah.

CR Christopher Rowland 1:11:41

Perhaps, Johnny, I don't know if you could just sort of what what we'd like to understand as well is you know, you also stated that you've done this based on historic analysis.

JC Jonathan Clarke 1:11:46

Yeah.

CR Christopher Rowland 1:11:52

You know, we would like to understand this if the parameters changed and you'd optimise the maintenance schedule in lieu of knowing the the new aviation limits, would that therefore mean that the 22% could be reduced because?

You know the work could have been planned, you know, in terms of the digital positive work orders and things that could have been planned in a more optimised way and you know potentially also mitigate risk profile and Seki impact.

JC Jonathan Clarke 1:12:20

That'll that'll be a question for someone downstream of me, Susan.

SG Susan Gair 1:12:21

Sorry, what was that?

Yeah. No, I think so. What was the actual question there? Sorry, Chris. So in terms of optimising which part?

CR Christopher Rowland 1:12:28

So if so, so the assumptions in the time off your model right now as I understand it is it's based on historic analysis. So it's effectively of the work that we have done. How would that have been impacted? My question is if we had planned the work knowing the impacts, knowing the limits that we have going forwards, what would the foreseen impact be?

OG Oliver Gardner 1:12:53

What you've done differently, effectively you know if the wind bomb was there.

SG Susan Gair 1:12:53

I think I think, yeah. So but I think that that's fallen into, that's actually fallen into what we've we've done because we've said we've looked at historically how we would have been impacted if the when you know from the wind farm not being there versus wind farm being there, how we would have been impacted and then what

we've said is that this is the flight restrictions that we will have and we've applied that to our forward-looking maintenance plan. So the forward-looking maintenance plan is our actual real forward-looking maintenance plan.

DU Denis Ustich 1:12:54

Good. Yeah, there is, I think.

CR Christopher Rowland 1:12:55

Yeah.

SG Susan Gair 1:13:21

But what what it is is it's saying based on historical flights and historical weather.

OG Oliver Gardner 1:13:23

The forward-looking maintenance plan has been prepared with no wind farm.

MJ Morgan, John 1:13:23

So just to add.

SG Susan Gair 1:13:26

Oliver, I'm talking with what we've said is based on the historical maintenance, the historical flight times, the historical weather conditions, then this is how we be impacted. If we can no longer fly in night, IMC, et cetera, et cetera. And we've taken that and exactly to that forward into our forward maintenance plan. So it's a bit of a mix of history and going forward. So I just wanted to get, sorry to cut across over, but I wanted to get that out there that it's a mix of between the two.

CR Christopher Rowland 1:13:57

Yeah, but, but but.

DU Denis Ustich 1:13:57

And it's also just worth to add that we as described last Thursday that we operate to 365 new maintenance plan, which is set for a year in advance based on our maintenance requirements. And we should also shared with our aviation provider to account for helicopter maintenance. So we applied all the factors in the forecasting

maintenance plan and basically there is not enough.
Physical base to absorb the the additional 22% of work.

CR Christopher Rowland 1:14:31

Yeah, yeah.

Maybe I'll take that point second, Dennis. But I think the the first question is. Is is there, you know, if you build up your work task in that day, whether it's, you know, a three hour task plus a three hour task plus a one hour task or a four hour task plus a three hour task. If if you know that instead of having nine hours offshore, you've got 7 hours, then you would you would make up that that working day differently depending on, you know, your, your, your annual forecast of your six monthly forecast.

So.

Is there, let's say, a space and an optimization to change out the prioritised work orders.

Such that you can gain or can mitigate. Let's say the impact of the.

Reduced time offshore.

SG Susan Gair 1:15:25

I get I get what your question is, Chris. But I think what we're seeing is we've effectively done that. So we've done that by saying that you know you've, you bucket your maintenance into the, the the you know the critical importance of your maintenance and you get after that what we're saying is that that we're we're going to be creating up a backlog because we can't get after it all. So you you know we're we're saying that.

You take your time, you you take what you've got available to you, and based on the impact that we're going to see through freight restrictions going forward.

Right. We're going to be able to do less and less and less of that maintenance and that's what starts to build up the maintenance backlog that we talked about last week and that that chart that starts to show the increase going up within the first year and that that's that's the maintenance that we can't, we can't actually liquidate because we don't have the time available on the platforms to do that. Once we're restricted in flights.

OG Oliver Gardner 1:16:21

So you said a little moment ago that obviously what you've done is you've you've looked at your real you know what you are planning to do in the next 12 months, whatever you know you've looked at the next year's campaign and you've looked at what the impacts on that campaign would be if the wind farm.

Was present and so effectively that's where you get that real number of 22%. But the point that Chris is making is your campaign for next year presumably doesn't account for the presence of a wind farm. Therefore it's a worst case because you've you've you have not made any allowances for the changes that you've just said. We would like to access as we have done historically, but suddenly there's a wind farm there. Therefore, that's how we get to a 22% backlog. You haven't you haven't reform, you haven't relooked at how you might undertake that work in a slightly different way that's that's the point that we get and I appreciate this comes back.

SG Susan Gair 1:16:55

Yep.

No, but.

OG Oliver Gardner 1:17:07

Point around mitigation, but we're just asking for an acknowledgement that it isn't just a, you know, if you were to apply the restrictions to your current plan, of course that number would be higher than if you were to apply the restrictions and and you'd live with them and you'd worked around them.

SG Susan Gair 1:17:23

So what what we're saying is, is that based on the wind farm being there we are, we are applying the fact that the wind farm is there to our maintenance plan. So and I think what this is boiling down to is we we probably need another separate session on how we do our maintenance plan and our 365 days maintenance plan. So we've got the however many newbies in the area plus the CPC and we've got the maintenance plan that we've got to deliver for them and some of those are safety critical maintenance others or other maintenance.

I'm not an expert on that. We don't have the right people in the room to talk to that. So that's that's why I'm saying we probably need an extra session on it.

Because I'm keen, I'm keen that we get to the level of understanding that we we can both actually understand what it is that spirit are saying and why it's impacting us so

badly. But we've got that we've got the ability to go and do all of our maintenance on all of our newies and we've got a set amount of time that we can do that in. We've taken into consideration the wind farm being in place and that time is then reducing and we we physically don't have any enough days in the year.

CR Christopher Rowland 1:18:09
Yeah.

SG Susan Gair 1:18:27
To put on the extra flights and the extra days onto the newies.
That actually keeps it to the same the same amount of hours liquidated as we do now without the restrictions. So so I think I think, I think we've, we've we've done at least partially of what you're asking us to have done is we've looked at it and we've said this is this is how many days or how many hours we have to play with. Now there's a wind farm in, in the the proximity to our newies and to our CPC.
And this is all we can liquidate now. And that's what's driving the backlog. So the backlog isn't being driven.
Out of our current status.
And I'm not saying over, but we can't access the wind farm starting at the time.
Therefore, this is how much goes it's it's us driving it forward and seeing when the wind farm is there. We're restricted in flights. Therefore we've got less hours that we can liquidate this on the platforms and that there is the impact of that 22% lost time.

OG Oliver Gardner 1:19:26
Assuming no mitigation is put in place.

SG Susan Gair 1:19:31
In terms of faults.

OG Oliver Gardner 1:19:32
In terms of as John has suggested, a chartering extra helicopter for the summer months to to to condense the campaign. So based on the current way you operate things with no additional mitigations put in place, that's where you get the 22%. That's what we're trying.

SG **Susan Gair** 1:19:45

It's based. It's based on our contract. It's based on our contractual or contractual confinements that we're working within. Yes, yeah, yeah.

RM **Rae-Anne Marr** 1:19:46

Google.

OG **Oliver Gardner** 1:19:49

Yeah, as they currently are.

Yeah, as they currently are at this moment in time.

RM **Rae-Anne Marr** 1:19:52

And and all of her. I suppose. It's not just a case of thrown on an extra flight. You need an extra team. You know, it's we've. Yeah. So. So I think, you know.

OG **Oliver Gardner** 1:19:58

Of course. Yeah, of course. Yeah. Yeah, yeah, yeah, yeah, of course. Yeah. Yeah, of course. Of course. Of course.

SG **Susan Gair** 1:19:59

And days and ability to access and that's the that's the issue.

CR **Christopher Rowland** 1:19:59

Yeah.

RM **Rae-Anne Marr** 1:20:03

Understandably, we've looked at the 22% and we've said OK, So what would that mean in the business? So the impact analysis has very much factored in the wind farm's presence. Ultimately the the analysis has concluded there are not enough days in the year to catch up. And based on the 22%, so I think.

OG **Oliver Gardner** 1:20:08

Of course.

CR Christopher Rowland 1:20:19
Yeah.

OG Oliver Gardner 1:20:21
The businesses that currently operate.

CR Christopher Rowland 1:20:21
So, so we so we.
And this.

MJ Morgan, John 1:20:25
So if I have to questions on that.
Obviously you've calculated time, which you're not available. You know you can't fly, so you've got two hours less at the beginning or the end of the day, or or what have you, and that reduces the amount of time and hence you get to 22%.
Have you also looked at the fact that some historically you left the NUI at 3:00 for example, but you could have left at 5:00 and you've got perfectly good weather to do that in all occasions so.
You can regain 2 hours of your maintenance time in that way in a way that you've reduced it. Have you also looked at increasing?

JC Jonathan Clarke 1:21:04
So what I've done is look at the historical flights. I didn't make any assessment of what if they were trying to do on each individual day because you know, there's about 1500 different days I've looked at.

MJ Morgan, John 1:21:17
Increasing so you know the 2GO together clearly in, in terms of planning.

JC Jonathan Clarke 1:21:22
Yes, but also to to go back on your point, sorry. So if you had, say, a flight on one day where you are only you know maybe departing at 10:00 in the morning and they're coming back at say 1:00 in the afternoon, they just went out somewhere to, you know, reset a switch. The chances are that that flight wouldn't have been

impacted or you would the amount of time you would lose offshore on that would have been much smaller. So yes, in a way that is already sort of factored in that we're not therefore going to be losing much time on those flights.

SG Susan Gair 1:21:51

Did you want to come in there?

DU Denis Ustich 1:21:51

I think, yeah, I think just to add here, it is that on some days has 20 already outlined that we had to go and restart the platform on. There were specific scopes requiring certain amount of time on the platform or.

MJ Morgan, John 1:21:52

You haven't taken. You could be somewhere.

DU Denis Ustich 1:22:08

We couldn't extend the hours because we we haven't had a specialist vendor to to perform the work as the scope has been changed and reactive so.

You know, it's maybe sometimes very easy to say that or you can extend in those occasions you can extend by two hours or three hours.

See you on the platform. But if you cannot deliver the scope because you don't have the right competency in the team on that particular day, there is pointless of state.

CR Christopher Rowland 1:22:34

Yeah, I think I.

MJ Morgan, John 1:22:36

I would agree with that as well, but in terms of a very good analysis, but but obviously a very rough analysis because we're not looking at individuals doing individual scopes in terms of reducing time, you also need to look at increasing it as well when that's possible. I would also say that you maybe need to look at spare time as well.

You know, if you're on a nuisance for six hours, it might be the case that there's only actually 4 hours work to do, and you've immediately got two hours available to catch

up on some backlog or deferral as well that that could be a significant effect within the analysis as well.

JC Jonathan Clarke 1:23:12

So just to be clear on time offshore, so I've measured again the time that helicopters basically departing and then the last helicopter at the time it's departing. So the assumption being it yes, but but just let me so quickly make a point on this. So say that the first helicopter had left at whatever time the last helicopter left at another time that's nine hours between the two of them. And then I'm saying we lose 2 hours because of the impact and therefore you're losing 2 annoying that calculates as a percentage.

OG Oliver Gardner 1:23:39

Thank you.

JC Jonathan Clarke 1:23:40

What I think you're alluding to is what I haven't actually figured into it is well. Just cause the guys have got to the platform doesn't mean they're immediately able to do any maintenance work. There's going to have to be time to unpack their gear. There's going to have to be time to pack up their gear. They have factored in breaks as well. So even though they might be 9 hours between the 1st and 2nd flight, you may only act if you have 7 hours of working time. Now from that 7 hours, you're still going to lose 2. So I could do two out of seven, but I've actually done two out of nine in this.

Analysis at the moment.

MJ Morgan, John 1:24:13

I don't mean that's all completely understood that you know clearly you don't grab a spanner in the five seconds that you land on the on the platform. But my point was more that with all that preparation and everything permits etcetera, you might have finished after four hours and the helicopter's not due for another two, you know so so there's maybe already spare time available within your within your whole maintenance process.

JC Jonathan Clarke 1:24:20
Yeah, we'll have a chocolate bar.

MJ Morgan, John 1:24:38
For for going to new is that allows some some backlog to be.

JC Jonathan Clarke 1:24:41
This is again stuff that's downstream from me.

CR Christopher Rowland 1:24:42
I I I think.

MJ Morgan, John 1:24:43
Easily executed.

CR Christopher Rowland 1:24:44
I I think we maybe maybe just to try and summarise this this point.
I think for me there's two, there's two takeaways here.
I think sort of we would like to request if spirit is able to make a further review on on the time offshore analysis both to to potentially look at optimising the maintenance schedule in lieu of the the wind farm, you know, forecasted operating limits.
And you know, in touching on some of those points that John's mentioned in terms of.
You know tasks specific, optimised planning and how long things might take and what's the actual impact as a result of that. And I appreciate that's that's a large analysis and can take time, but but whatever can be done there I think would be instructive to to help sort of steer what may be done in, in, in the future optimization planning. The other point here want to just capture.
To your point, Susan, I think we understand this is based on your current contracted position with with you know helicopters, suppliers and and effectively your current operating model.
And therefore, I think you know our our point and I know we're not talking about mitigations, but our point is that as a reasonably prudent operator, there may be scope to.

To change your operating model to maintain a similar level of safety or or or similar level of maintenance discharge you know by adding resources.

And and I know Dennis mentioned it earlier that there's not enough days in the year, so did want to just understand you know if if if you add helicopters and additional contracts to different people, is there any other limiting factors that that is that is preventing you know these days offshore to to do the work on the nuis because you know our assumption is that.

You can add resources to to discharge the MAINTENANCES as is necessary.

SG Susan Gair 1:26:52

I think I see Dennis has got his hand up. We're not sure if he's going to answer that or do you want me to go first, Dennis or?

DU Denis Ustich 1:26:53

Click yeah, yeah.

I've I've I think. Yeah, I will leave the second part to you, Susan. However, just on the first part about optimising this the maintenance schedule, I think you know it's worth highlighting that the current maintenance plan is optimised to the current operational setup we have with the asset. I think it's worth to highlight that we're not sending people there just for sake of sending they they're going there with.

A clear work scopes on the day and you know if if the days are shorter, there is a reason behind them. It's not. As I said, it's not just the sending people for fun.

But also need to account that by increasing the number of days there is additional exposure to personal for helicopter transportation risks, which Ross can.

Advise on later on if required in in the. Lastly worth to add there is on some of the news we have an annual limit of landings available landings as well, so we cannot physically increase the number of days going out there so so just just to highlight.

And Susan, I think over to you on additional ways of how it can be mitigated with the teams and their and helicopters.

SG Susan Gair 1:28:14

Yeah. Well, I think it's just, it's very much in line with what you've just said, Dennis, is you know we we've looked at the analysis and we can't physically get the additional days on there. So I don't see there being a solution that's throwing a change in business operation model, a change in helicopter operation model, a change in

adding resources because it's actually down to a finite resource which is 24 hours in a day.

And the ability to fly so many days on to each of the newies.

So I mean it's for from from this point in time it's it's a it's a it's a no, we don't see that as being an option.

OG **Oliver Gardner** 1:28:52

On on average days how many you've got, you've got two intervention cruise, is that correct at CPC?

DU **Denis Ustich** 1:28:58

So we have between two and three teams depending on the season and the scopes.

OG **Oliver Gardner** 1:29:01

So, so in so in in, in summer, for example, you've got three crews. Would they be potentially working on three new is at the same time or you might have two on one and one on another?

SG **Susan Gair** 1:29:11

So I don't of Oliver, I don't think we're the right people to answer this. That's what I mean about taking away to do a separate conversation because we need Andrew McDonald that we had last week in the room because he can actually answer this him and the planning team, him and Dave, who were in the room last week. They're the guys that can answer this. We've said as much as we can say on it, to be honest, without actually, you know, maybe maybe sort of giving false answers, which I clearly wouldn't want to do.

OG **Oliver Gardner** 1:29:16

OK.

Of course.

To put I just would like to want to make is that you you you say that yeah you can't add more days in but what you can do is you can do more on the days that you've got by having more crews and more helicopters. That's I guess is the point that we're trying to make.

SG **Susan Gair** 1:29:43

No, because there's a PO. There's a po B. There's we're. We're we're limited by the personnel on board.

DU **Denis Ustich** 1:29:43

So, so, so, so so yes.

OG **Oliver Gardner** 1:29:49

On board the new E or CPC.

DU **Denis Ustich** 1:29:49

So. So the yes, each new has a maximum pob constraints. So it varies depends on the size of the new and.

SG **Susan Gair** 1:29:50

So that's finite resource as well.

OG **Oliver Gardner** 1:29:59

You could work on different nuis at the same time, so at the moment you don't have a work on what you work on one or two at a time. You. Yeah, I know. But I'm just. Yeah. OK, OK. But it's we just want to make sure that there's not hard lines that we can't do anything different. We're trying to acknowledge that.

SG **Susan Gair** 1:30:05

We do. But again, I think we're straying into conversation here that we we're not equipped to answer, but I just.

DU **Denis Ustich** 1:30:06

No.

SG **Susan Gair** 1:30:13

I want to make sure that you've got. You've got the right answers for a start and that's that's the conversation. We stepped into this in the pob. We stepped into this conversation last Thursday and we had Dave and Andy in the room. So. So I think we

definitely I think we need to sort of just, you know, park this one here and if the action is to take away and do a a further you know a day on you know maintenance, scheduling and planning and how we operate.

MJ Morgan, John 1:30:28

Oh, I I can answer that for you.

SG Susan Gair 1:30:38

We're happy to take that away and and see if that's something we can organise.

CR Christopher Rowland 1:30:43

I think we'd just like to to understand, you know that that's the impact analysis today is based on current operating model and contractor position.

You know, we understand there's been different maintenance strategies over the years. You know also potential to bring in flow tails and other things we, you know, we do want to understand what is the.

Lowest common denominator limit here. Let's say that the you know the point that. Prevents additional work.

To be scheduled.

But I think you know our request here would be if you could take away these clarifications and respond on respond on them to us and then we can we can, you know, seek to.

To pick up this discussion further.

SG Susan Gair 1:31:34

Yep, no, I think that's good.

RM Rae-Anne Marr 1:31:36

I yeah, we're happy to do that because like Susan said, you know, Andy and Dave can add a go, you know an additional layer of information here. But hopefully from what you've heard from from Dennis, it's not a case of just an extra helicopter and an extra crew. It's just simply not as simple as that. So we'll take away, you know, the clarifications. But you know it's the plan is optimised as currently. So I think that let's not understate what they ask here is.

But we'll take it away and we'll come back and if it warrants a further session with those people on a call, we can look at if organise something around that.

CR **Christopher Rowland** 1:32:13

Yeah. OK.

OG **Oliver Gardner** 1:32:14

Totally recognise it's optimised. Of course it is we. Yeah, we we we accept that and and you would, you know be doing your jobs to Dennis to make sure it was so we we fully acknowledge that it is it's going to be running as you know as fully optimised to take account of of everything as it currently is so yeah.

CR **Christopher Rowland** 1:32:29

So I would propose then we step on to agenda item 4.
And invite anitec to step us through the aviation calculations that we've presented.

OG **Oliver Gardner** 1:32:41

Sorry, there's one other thing that, that, that wasn't had on her, which we haven't got to which potentially I think is worth very quickly touching on and that was the increase increased risk from increased flights. So I think there's an important point to make there around that you know we're talking about rescheduling flights. That's not a new flight. That's just a flight happening on a different day and you know that does talk quite specifically to the safety piece because I don't think you know appreciate we're, you know, we're not talking about.

Mitigations initial flights yet, but I think you know the point does need to be made that we're not, we're not talking about.

Doubling, tripling, quadrupling number of flights, no majority of the what we're talking about is delaying a flight to another day. That's not an increase in number of flights. That's just a flight happening on a different day and potentially on a day when the weather conditions are better, which will reduce the risk profile. And obviously there is some potential for increasing the number of flights if flights if the if the time offshore is shorter. But again, we're not talking about significant numbers and and John and Alex, I'll, I'll let you talk on on on this risk piece.

That are going to ultimately significantly change the risk profile of those people working offshore.

RM Rosalyn Masson 1:33:46

OK. OK. So on, on, on, on your point, Oliver, that that you're not talking about additional flights, you're talking about, you know, rescheduling flights you might be talking about that. But I think what we made clear last week was that the impact as we've announced what has come out of our analysis.

Is that we would require a significant number of additional flights to execute our Maintenance strategy.

And those additional flights each carry a quantifiable risk to our personnel. So we can calculate.

The impact in terms of increase in erpa to our newly interventions take team as our direct result of the flight restrictions that are being imposed upon us.

MJ Morgan, John 1:34:51

Hi I'm will respond I guess.

I don't think it's a lot. In addition to say, from our report, we wrote a number of weeks ago, a month ago or whatever. Clearly, if you have an additional flight, it is an additional risk. There is a massive variation in the number of flights that happen anyway offshore.

Don't have a figure off the top of my head, but even plus 20 + -, 20 percent, 30% per year. So there is significant variation in in that risk that exists anyway.

That risk, I would also say is highly uncertain. It's also significantly below any tolerability limit that's set by the HSC. You would have to be continually flying in multiple helicopters around the whole site with everybody for that to actually happen.

I'm not more to say an additional flight is an additional risk. It's the same conversation as previously that that is not a massive proportion of the overall risk that exists.

And he's very significantly below the tolerability level.

I mean I I I assume spirit would agree with all of that.

RM Rosalyn Masson 1:36:04

Not entirely, John, no.

I obviously do agree that each additional flight carries with it an additional risk.

I do not entirely agree with. I think is the inference you were hoping for us to draw

from your report that certainly it's it's it's an inference that is you can take from your report.

When you claim that the risk per flight is conservative.

That seems to be implying that the true risk is very much lower than this.

And you've also cited, you know, the absence of fatal cracks. Sorry. Can you repeat that?

MJ **Morgan, John** 1:36:51

Bring with work.

So what do you know?

Sorry, just not clear what you're not agreeing with.

RM **Rosalyn Masson** 1:36:59

I I don't. Well, you seem to be implying that the the risk is very much lower.

Than would be would be calculated using the. What is the industry standard data for such calculations? I don't agree with with that.

There there is variation.

Throughout the year, in the number of flights but.

That does not take away from our analysis, which, as indicated, a significant number of additional flights required as a result of.

The the wind farm and the flight restrictions that would be imposed upon us. Now obviously there are still we still need to resolve the level of that impact and I think that's what the conversation today was was hoping to to to get closer to a shared understanding.

Much of what I've read from your report.

Is very heavily dependent on.

Your assessment that the impact is low that we would not require very many additional flights and hence the impact on risk would be correspondingly very low.

Obviously our analysis differs from yours and I don't think we're ever going to resolve that point until we come together.

In a shared understanding, which I think is everyone's goal.

So we have concluded from our analysis that there is a significant impact.

MJ **Morgan, John** 1:38:40

But don't say what what do you mean mean by that? I mean because it's not.

RM Rosalyn Masson 1:38:41
And.

MJ Morgan, John 1:38:47
The change of the addition of the wind farm is probably is not a material change to the safety case.
We're not affecting.

RM Rosalyn Masson 1:38:54
That is your judgement.

MJ Morgan, John 1:38:59
That's all judgement. Yeah. Yeah. So it's gonna be a judgement call.
And so it sounds like we've got agreement on the risk, it's an additional quantum of risk. If you're going to have an additional flight.
That's nowhere near tolerability levels and as always said at the beginning, we're not, we're not talking about doubling or anywhere near that. The number of flights that people take if there is an additional flight, it has to be an additional risk.

RM Rosalyn Masson 1:39:17
OK.

MJ Morgan, John 1:39:27
The variation of flights that you have from year to year massively swamps that effect anyway.

RM Rosalyn Masson 1:39:34
Well, I think we'll have to find our our common understanding ground for us to to get to that position, John.

MJ Morgan, John 1:39:43
I'm just not clear.

RM Rosalyn Masson 1:39:44

But on the point on the point the the on the point you made about, we're that we're nowhere near the tolerability threshold. We we've never claimed that our risks will breach the the tolerability threshold of 10 to the -3.

But I would point out that.

Just because we're not breaching that upper tolerability threshold does not mean that the additional risk is acceptable.

And we would, we would anticipate any significant increase in risk to our personnel to be challenged by our regulator.

MJ **Morgan, John** 1:40:29

The define significant place.

RM **Rosalyn Masson** 1:40:33

You know, significant as a judgement, you've made your judgement. I've made mine.

MJ **Morgan, John** 1:40:38

What? What was on it, though? What? What does it mean?

RM **Rosalyn Masson** 1:40:40

Yeah.

Certainly from the the analysis that we've carried out, we've calculated the impact on risk. We have calculated that the helicopter transportation risk for the newly intervention team will increase by 50%. I would consider that material.

MJ **Morgan, John** 1:41:04

How does that even match a + 22, which is a worst case scenario?

RM **Rosalyn Masson** 1:41:12

All I can tell you is that our analysis has calculated an impact and overall, can I finish please John, our analysis has calculated an overall impact on flights. That analysis has fared into other analysis on available time offshore.

MJ **Morgan, John** 1:41:16

Interesting now.

RM Rosalyn Masson 1:41:32

And that team has advised me the number of additional flights that would be required each year, and I've used that as a basis to calculate the addition or risk exposure for our personnel. I can't remember exactly off the top of my head what that a number of additional flights was, but that has been the flow of information through those analysis.

Now, if that if that analysis changes as a result of the discussions that your team and our team are having on the the flight impact, then obviously my analysis will change also.

RM Rae-Anne Marr 1:42:11

I just see before we move.

CR Christopher Rowland 1:42:11

And can I just clarify, sorry, this analysis Roz is based on changing your operating model to contract additional flights to the New East. So it would be.

SG Susan Gair 1:42:22

No.

RM Rosalyn Masson 1:42:22

No, no, no, Chris, I I, it's absolutely not the case. My analysis is based on the flight impact that would result from the flight restrictions that flight impact is fed through to the analysis by our planning team about for the number of additional flights that would be required to deliver our maintenance plan and that number of additional flights I have used to calculate the additional risk exposure.

RM Rae-Anne Marr 1:42:23

Can we can we?

CR Christopher Rowland 1:42:54

But but but sorry it's.

RM Rae-Anne Marr 1:42:54

On the 22, I'd I'd really like to clarify. Sorry before we when we're referring to worst case 22%, I just want to be clear as we've been transparent with the different layers of impact analysis that we've run that we haven't based some of this on. Worst case scenario, we've been very pragmatic and pulled in assumptions of of the applicant in some of this. So this isn't to paint the worst case pictures. I just want to be clear.

MJ Morgan, John 1:43:17

Microphone ready.

RM Rae-Anne Marr 1:43:21

We're not referring to worst case scenario, that's never what we've we've we've we've tried to apply reasonable you know and and apply a layer of in practise what this would do to us. So just want that that made clear.

CR Christopher Rowland 1:43:34

But that would be.

MJ Morgan, John 1:43:34

I think.

Worst case in terms of that, it doesn't account for the corridor or other mitigation.

OG Oliver Gardner 1:43:40

Yeah, I think we could part the worst case, but I think we we we accept we we accept that the 22 percent is is is your, you know realistic, you know. Yeah, you know on based on your current understanding of it I think we we you know we acknowledge that you're not accounting for for these additional mitigation. So when we say worst case I guess we're just we're just saying that you know there's a potential next step to to which we obviously haven't got to yet because we're on to the aviation fee yes yeah yeah.

RM Rae-Anne Marr 1:43:46

Thank you, Oliver.

Yeah, it's the base case that we've used, but yes, it certainly isn't to paint a worst case picture. We we didn't pick the worst data we really could have, but we haven't. Thank you.

OG **Oliver Gardner** 1:44:05

No.

Yeah, yeah.

MJ **Morgan, John** 1:44:10

Understand. I don't understand. Yeah, yeah, yeah.

OG **Oliver Gardner** 1:44:11

Just, just just just to confirm. So you're saying that you've done this analysis in the additional risk based on no optimising for the work based on the impact as the on your current maintenance schedule with Wind Farm was there and in order to get that you've had to add an additional flights. So if those additional flights aren't to optimise the work, what are those additional flights for?

SG **Susan Gair** 1:44:30

It's what. Yeah.

So what we're saying is, if we had to so the the backlog picture that we showed last week that we're saying we can't get after because there's not enough days in the year, the days that we can get additional days that we can fly, we've we've put that in and that's what Roz has then taken her additional days on to say in order to get as many of these days recovered as we can within the days of you'd available to us. This is the additional flights that would have to happen. We're not saying we can do it and we're not saying that actually we can fit that into 365 day plan, but we're saying.

OG **Oliver Gardner** 1:44:39

Yeah.

Yeah.

MJ **Morgan, John** 1:45:03

It actually no 57.

SG **Susan Gair** 1:45:05

That if we had to do all these additional days, that's what the risk would be.

OG **Oliver Gardner** 1:45:07

Yeah.

If yeah, OK.

MJ **Morgan, John** 1:45:10

'Cause I actually go in there 50% you know, because otherwise you'd have a third of the year spare at the minute, which is clearly not the case.

OG **Oliver Gardner** 1:45:13

Yeah.

MJ **Morgan, John** 1:45:19

Even if you could increase the flights, the 50%, it's unlikely the affordable.

OG **Oliver Gardner** 1:45:19

I think.

SG **Susan Gair** 1:45:25

Are you looking at it from the potential from the point of going to all the all the different UES though, cuz that because there's like the four or five different UE flights that we're talking about.

OG **Oliver Gardner** 1:45:26

I think.

Yeah, I guess, I guess we need to have that conversation with Dave and Andy, really, don't we? It's yeah, I think there's no much point to go around that.

MJ **Morgan, John** 1:45:32

No. Yeah, it's really you're not adding.

CR **Christopher Rowland** 1:45:39

Is that something that you'd be able to share with us, Ros, that analysis?

SG **Susan Gair** 1:45:44

I think we'll take that and we'll we'll look at it. We'll look at it all as a whole when we go and look at your questions on the impact analysis and we go and organise what we need to with Dave and Andy as well and the 365 maintenance day plan and and we'll we'll see how far we can take that and what we can share.

CR **Christopher Rowland** 1:46:01

OK, I'm I'm very conscious of time and I'd like to to get on to the aviation piece, but I would just like to can kind of conclude this this point if we can and.

MJ **Morgan, John** 1:46:02

Thank you.

OG **Oliver Gardner** 1:46:03

Yeah.

CR **Christopher Rowland** 1:46:13

John, if you can support here, but you know our understanding is that the safety case would not be impacted. You know, based on the principle of elap and you know, despite any changes in in heliop's and number of flights, you know that principle would not be changed.

So you know in in the sort of fundamentalist to the, to the, to the safety case, we didn't anticipate that would be.

A change.

MJ **Morgan, John** 1:46:43

And I think our reasoning for that is.

To the safeguards that you have in place. Don't change, you know, notwithstanding all the discussion that we had had on backlog.

The changes to the that you need to describe in the safety case in relation to the the visits to new is flying that you do nothing changes. So therefore you know it's not an impact on the safety safety case. It hasn't changed the assumptions of the basis in which the safety case was accepted.

SG **Susan Gair** 1:47:16

So I was just basically, I'll let Ros come in and that, but it's my understanding that we don't agree with that.

RM Rosalyn Masson 1:47:22

No, no, we we we don't agree. We would consider that.

If you know, once we reach a common understanding on flight impact.

If I were to be.

Informed that yes, the flight impact as we have currently analysed it will result in the number of additional flights that we have currently on assessed and and concluded if that were the case.

And our new E intervention team risk were to increase the transportation risk were to increase by 50%. I would consider that a material impact requiring submission to the regulator. Now you've acknowledged yourselves that that is a matter for.

The the duty holder to consider and decide, and there are no clear.

Quantifiable.

Guidance out there.

To to sort of help us to reach that determination, but certainly that level of impact we would consider to be material.

RM Rae-Anne Marr 1:48:38

I think if we if we can use the the last of the time to get into the aviation, I think what's clear is you know obviously this this this understanding is made-up of different layers of assumptions and different layers of impact. I think that we've got to a point where there is there is still remaining you know there's a misalignment in terms of the safety case impact based on the current, the impact that's been shared by Johnny and others, if there's any element of that that we need to take into.

Patient. Let's do that. I just want us to have a full conversation with the right people in the room rather than take to continue to bang the drum with this. So if we could use the the remaining time to move on to the annitech aviatec, you know, calcs and and others which I suspect may take up the remainder of the session, then I think this is a right, right time for us to pause.

CR Christopher Rowland 1:49:32

Yeah. No, I, I, I agree, Ryan, and do appreciate, you know, the reflections on this. I think we we you know we request to have spirits updated comments back on those

clarification questions and.

We would, we would like to to, you know, come back to this, I think.

Another session.

I'll bring it on then to to Anna Tech's updated analysis. So.

But you mark.

To.

Talk us through this, this one.

It's just.

Tell me when to to move it on. Thanks.

MP

Mark Prior 1:50:15

Yeah, sure, sure.

I I believe these were.

Questions spirit posed to us after the hearing the other week? Bullet one and bullet four really talk about the VMVMC case or why we think 1.5 miles is enough. There are some questions on IMC, plus how we've looked at the impact as well.

So if we could move on to the next slide please.

This starts to talk about the day at VMC. There are two sides to this one the actual distance you need to do an approach and this is not dependent upon the aircraft type. It's purely upon the speed. Now for this I've. I've assumed that until the.

A stabilisation point the helicopter will be flying at 80 knots.

The.

Stabilisation point is in place really.

Because because of accidents in in in the past where the approach has been rushed so.

At that point the aircraft has got to be into wind with all cheques complete.

Have the correct power and at the correct speed.

And certainly the fairly offshore guidance which is now being.

A adopted into the draught CAP 764 says for for day VMC you should aim 4.5 per mile.

CHC in in fact allow it down to .3 and bond.

Currently use .75 of a mile, so we've gone for the worst case, which is bond at .75 of a mile.

I I think both have your tech and user aligned that the worst case is of course you've got to go beyond the.

Platform position downwind and then make a turn back in into wind.

And of course, you've got to keep clear of the turbine blades themselves. So if you sum up all of those three figures, you come to 1.26 miles, which is the distance you need for day VMC approach, using the worst case of a bond, a figure .75 of a mile.

NB **Nigel Blackstock** 1:53:02

I says can I sorry mop and can I give us our opinion on on, on on those distances?

MP **Mark Prior** 1:53:02

We know. Yep, sure. Sure, Nigel.

NB **Nigel Blackstock** 1:53:10

As you stated very clearly, we we we've worked ours out at .5 naughty miles because that is the the current operator uses .5. However clearly it's it's not doesn't mean that that same operation will be operating here in the next two or three years. It could be, it could be the one that operates 2.75.

The radius of turn. Yes, agreed it was. Is a little bit higher than what ours is, but that's it's not. That doesn't make too a major difference. What?

AB it takes opinion is is based on what on your figures is there is that is that as soon as the pilot you base it on, as soon as the pilot.

Comes out of his turn. He's 180° turn because he was downward.

Strip he he he turns out he rolls out and he's right at the is the stabilisation point and he needs to be 100% sure that he needs all those stabilised state approach criteria as soon as he rolls out.

We're over the opinion that he's a little bit unrealistic. We feel that parts need a little bit of time to ensure that when they are reached that stabilise station point.

Obviously they need to meet all those stabilisation criteria, otherwise it's a mandatory go round as you're aware and we feel that it's a little unrealistic to expect a power to roll out and be instantly stable and to assess himself as such and we and that's why we've given a better.

To ensure that.

Has got time to make sure he meets all those stabilisation criteria prior to getting the the the stabilisation point, and we've also then.

Added extra time there from we obviously catering to the lowest common denominator. We need to ensure that all pilots are able to have the time they

require, whether it's a senior captain or junior Co part and we've assessed that 45 seconds would be adequate amount of time to ensure that.

They meet those criteria and the last thing, as you said, we don't want to rush the pilots to to to get them.

To ensure that they are at that point, meet all the criteria.

So we're of the opinion that .26 or 1.26 is inadequate or the average pilot.

OG **Oliver Gardner** 1:55:45

Can I just ask a silly question?

Did CAA not consider those things when they come up with a one point .5 nautical mile buffer obviously wasn't involved in the drafting of CAP 76 or I don't know if anyone in the room was.

MP **Mark Prior** 1:55:56

Well, well, well, perhaps I I could could answer that. I I was one of the authors of the highly offshore guidance.

OG **Oliver Gardner** 1:56:04

There we go.

MP **Mark Prior** 1:56:07

And it's assumed that the pilots will be using the autopilot upper modes, so that means they will be in in the correct configuration. The aircraft will be under control and as well we have have allowed that extra 50%.

So at 2.75 of a mile to take in into account some of the points that you've made, Nigel, but.

We can also quote at. At the end we have have some slides showing where a a approach is using a a smaller distance than this are actually being done on on a daily basis safely now.

So this is this is not some something for the future. This is something that's been flown every day now and it's.

Being done in a Safeway and it's quite clear that the CAA and that their draught cap have adopted the same guidance. So we have have that guidance in in hand. We've added on on the buffer to take in into account the worst case which is the bond and figure of .775 of a mile.

So.

We believe we are completely compliant here.

NB **Nigel Blackstock** 1:57:46

So instead about compliance, but we're of the opinion that there needs to be a buffer to ensure that those parts are properly settled. You know, point .25 of a mile is probably about 10 seconds or so. That goes by pretty quickly.

DU **Denis Ustich** 1:57:47

If it.

NB **Nigel Blackstock** 1:58:01

But yeah.

OG **Oliver Gardner** 1:58:01

I think Mark's point is that that was that was that was considered in the drafting of the guidance.

MP **Mark Prior** 1:58:03

So so it is your point, Nigel, that all of the operations being flown to platforms close to to wind farms and platforms in inside and wind farms are unsafe.

NB **Nigel Blackstock** 1:58:07

OK.

But that's not my opinion. We just feel that that is we do need a little extra bit of time. I think it's it's it's.

MP **Mark Prior** 1:58:22

OK.

NB **Nigel Blackstock** 1:58:27

To expect the pilot to roll out at the SAP and be 100% stable is unrealistic.

MP **Mark Prior** 1:58:35

I completely disagree and that is why the autopilot up upper modes are used and

that is why they're trained.

So look look.

CR **Christopher Rowland** 1:58:47

And is it, is that an? Is that an employer?

MP **Mark Prior** 1:58:51

So looking at at the time, shall we move on here or or we could go round round around, yeah.

OG **Oliver Gardner** 1:58:55

Yeah.

NB **Nigel Blackstock** 1:58:57

We can agree to disagree. Yes. Let's move on to next.

DU **Denis Ustich** 1:59:01

I think just to add here that the numbers which been used during calculations with the AV attack are also being verified by our aviation provider and also the agreement that the pilots need a stabilisation buffer because as not all pilots festival are.

Test pilots and as Nigel already outlined, the time flies quickly. It's around like 40 seconds.

We reckon that it's a safe, safe distance to have the aircraft stabilised. Also another point point to note that maybe such distances are used elsewhere in North Sea.

However, we're talking about our operations where the multiple flights are performed daily, not just one. Every like once a day we're we're talking about, you know, doing up to 1620 lakhs per day.

Hence hence why you know I I don't believe that such distance is adequate. But again we we we we disagree between each other here and I think can move on.

MP **Mark Prior** 2:00:08

Yes. Yeah, thank you. And and we do have some some more slides on this towards the end. So we've talked about the actual approach. Perhaps if we could move on to

the next slide which is the take off now, the actual take off distance you need does depend upon the aircraft type because each type can have a different.

CR **Christopher Rowland** 2:00:17
Could I?

MP **Mark Prior** 2:00:34
Power to weight.

Ratio.

So the assumptions we've used because CPC one is closest to the wind farm, we've used that as the test case, the helideck 184 feet above the sea.

We've used a massive 4.8 tonnes. Now we have asked for frontage.

Data showing the.

Facts of passengers on board.

Because if we assume you optimise your flights, if every morning the first flight from Blackpool should go to CPC one with that eight on board.

Because 'cause, you've got to do the crew changes. That means the maximum weight it can depart.

Blackpool at 4.8 tonnes all take offs built on that will weigh less but we have used the worst case here.

We've used a temperature of 15 pressure of one that 013 which I think is the same as that Aviatec and the same wind speed we have implied.

Applied in enhanced power graphs and this was.

Certainly shown in our Rep 2033.

Now when they did the weight upgrade of the 169 from 4.4 tonnes to 4.8, they are brought in in advance power because, because.

I think the OEM admitted at the time, perhaps it was a bit of a stretch and certainly other operators have begun to adopt.

Enhance power. I've not spoken to and NHV but it's assumed that within in the next five years they will do the upgrade as well. So those are all of the assumptions we've made.

Drop down. We have the figures there. Yep.

NB **Nigel Blackstock** 2:02:56
Sorry, mark.

Would you mind if you just go through each section and then I'll I can then I can comment on on on on each section as as we go through them. Is that OK?

MP **Mark Prior** 2:03:05

A lot of each of the assumptions or the next part.

NB **Nigel Blackstock** 2:03:08

No, no, no. So at the end of the assumptions in our make comments, end of drop down end of whatever, if you if it's OK.

MP **Mark Prior** 2:03:16

Yeah, yeah, sure. Come on.

DU **Denis Ustich** 2:03:16

And and.

NB **Nigel Blackstock** 2:03:17

OK, so I know that I know that Dennis wants to hop in the on the on the 4800. You can you can jump in shortly, Dennis. So yeah, those first five assumptions is what we've certainly we've certainly used. We have not used the enhanced power graphs, those are 16 nines do not have that upgrade at this time. And from our understanding, it really doesn't do much for normal day-to-day operations. It really only helps, especially when farm operators who are doing the hover out of ground effect attends to to give a quite a bit of extra power there. Currently, yeah. But yeah, we agree. Agree with those first five assumptions and I know that Dennis will want to say something about the 4800.

DU **Denis Ustich** 2:04:06

Yeah. So, so in terms of the payload, I think it's worth just returning back how spirit operates. And I know, Mark, maybe without the context, it's very hard maybe to map up the way how we we fly. But we have a different flights, we have flights for new shuttlink and we have a crew change flights, we're not crew changing on the morning or evening legs, so the aircraft. Goes out potentially empty or with one or two passengers in the morning.

And then picks up the full payload for new shuttle deployment. So hence why we account for a full payload during the shut link operation for a crew change flights. You're correct, the aircraft it takes it takes with the full payload from Blackpool and then it goes to Central and back. So for all the new flights we account for the maximum payload and given that. Fuel burn along the way.

MP **Mark Prior** 2:05:04

Right, right. Thank you. Yes, we have asked for the packs data which would help help us, but here I have have a applied the worst case of of of 4.8 tonnes so.

DU **Denis Ustich** 2:05:05

Yeah.

Yeah. So we account for 4.8 for all, all the takeovers basically for new flights.

RM **Rae-Anne Marr** 2:05:24

Sorry.

MP **Mark Prior** 2:05:26

Yes, yes. Yeah, yeah, so.

RM **Rae-Anne Marr** 2:05:28

I mean that number when we refer to worst case, that's the contractual weight for the airframe that's in in question. I mean it's it's the weight we can use, it's not, it's not you know worst case and I suppose that the element around the request for the data, I mean we've got you know you'll appreciate that that going trawling through the data and sharing that it's it's trying to understand what what it's trying to show, what we're demonstrating by turning the conversation into how we operate is that there may be elements of that that you might.

DU **Denis Ustich** 2:05:35

Yes.

MP **Mark Prior** 2:05:37

Yes.

RM **Rae-Anne Marr** 2:05:59

Able to pull out and say look you didn't fly using nearly your full payload here, but what I think is more important in all this is the operational reason as to why not and I think that's the offering that we've we've we've had on the table with Dennis from you know our first conversation in October. It's let us help you know answer any questions and how we operate in respect of the payload because the data on its own you know that that's what we're trying to achieve here is the context of you know we've got the 48 so we need.

MP **Mark Prior** 2:06:22

Yeah, sure, yeah.

DU **Denis Ustich** 2:06:24

Yeah.

Yeah.

RM **Rae-Anne Marr** 2:06:29

To be able to utilise our our full payload here, I just want to clarify that.

MP **Mark Prior** 2:06:32

Yes, yes. And and I, I get that point. So perhaps if we move on on to the next slide in in that less Nigel has a point. So next slide please.

CR **Christopher Rowland** 2:06:44

Yeah.

NB **Nigel Blackstock** 2:06:47

Sorry. So just so the drop down, sorry, Mark.

CR **Christopher Rowland** 2:06:48

Yeah.

MP **Mark Prior** 2:06:50

Yep.

NB **Nigel Blackstock** 2:06:53

It's it's not a major difference. I mean we I think we have dropped down that we got was was was 9 feet compared to your your one foot.

And your the draught reference is S4 D 15.

So we were utilising S4 T which comes off the offshore and 11th Heli deck supplement.

MP **Mark Prior** 2:07:15

And this is as well, but it's at the enhanced power.

NB **Nigel Blackstock** 2:07:19

OK. Can I ask you please if you guys can supply the graph that that you got that just because I just don't have anything to compare it with at the moment?

MP **Mark Prior** 2:07:27

I I I believe these graphs and and a scan were meant to be shared before the call.

NB **Nigel Blackstock** 2:07:34

And then get it.

MP **Mark Prior** 2:07:38

Oh, right, right. But yes, I've done a full scan and I believe it's planned to to be shared at at some point.

NB **Nigel Blackstock** 2:07:40

OK.

OK, perfect.

And then I continue to take the CTO or the continued take of distance. Agreed. It's 100, it's it's, it's a statement in the A clear statement in the RFM stating that that is it, it's a fixed, it's a fixed distance, doesn't go out and it doesn't take anything into account with regards to weight, allergy, temperature or wind. That's just a straight 350 metres. So I agree with that.

CR **Christopher Rowland** 2:07:48

Yeah, I'll.

MP **Mark Prior** 2:07:56

Yep, yes.

Yeah.

Right. So if we could move on to the next slide please.

Light path one.

A. A. Again it's got the graph referenced there. The actual distance and those graphs and will be shared.

Level flight, yeah.

NB **Nigel Blackstock** 2:08:31

But sorry, sorry. Can I can address that one. So in our initial.

Submission we used above the take off surface.

MP **Mark Prior** 2:08:47

Yeah.

NB **Nigel Blackstock** 2:08:48

For our calculations, you then came back with a with a critique on that, saying that that is not how it works.

It should be done above B&C level. We took it on board, we reviewed it, 100% agree with you and we reworked our distances based on above mean sea level and reduce the distances because it is a bit of a reduction.

MP **Mark Prior** 2:09:17

Yeah, yeah.

NB **Nigel Blackstock** 2:09:17

I don't use dating now in your flat path, one that you are climbing to above the take of surface.

MP **Mark Prior** 2:09:23

No, my, no pack, no.

NB **Nigel Blackstock** 2:09:24

I don't know. I'm a bit confused by that. If you told us that we shouldn't be using above take off distance.

MP **Mark Prior** 2:09:30

No, the actual point was at at what height.

NB **Nigel Blackstock** 2:09:31

Perfect. Sorry.

MP **Mark Prior** 2:09:35

Do you make the turn?

And the point I I meant to make was.

OG **Oliver Gardner** 2:09:47

But we lost you there. Mark lost you there, but lost you there, Mark.

NB **Nigel Blackstock** 2:09:47

Sorry, sorry. You lost your phone.

MP **Mark Prior** 2:09:47

At that level, it's not at 500 feet above.

CR **Christopher Rowland** 2:09:51

Sorry, Mark, could you just repeat that part we just lost you on the?

MP **Mark Prior** 2:09:52

Sorry.

Sorry, I yes, the point certainly I I tried to make was the height applies to the point at which you start to make the turn, not.

So you start to make the turn away from the wind farms at 500 feet above sea level,

because if you climb to 500 feet above the deck, that could could put you in into our IMC if the cloud base was on the.

Lower limit, so the actual climb flight path one will be 200 feet above the heli depth height.

You then do the level excel. You then have you your flight path 2 to 500 feet above sea level. At that point you start your turn and if the the cloud base is high, you continue to climb or if the cloud base is low you level off.

NB **Nigel Blackstock** 2:11:04

I'm gonna say we disagree with that.

Quite strongly. What when we talk about above mean sea level, it's it's what the pilot season and and this is where we agreed with your initial statement saying that we shouldn't be using above take of surface when the pilot looks in, in in the aircraft after he's had an engine failure he's looking at his he's his altimeter and that's showing above mean sea level.

It's not showing above type of surface, so he's going to level out at 200 foot above me in sea level, not 384 or yeah 384 foot. He's at a level out at 200 foot above me and sea level. That means that he's only flying or only climbing about depending on how much you obviously drop down 20 to 25 feet.

MP **Mark Prior** 2:11:31

Hmm.

NB **Nigel Blackstock** 2:11:55

Clearly it's going to happen very quickly.

But he's only going to be climbing about 2:20 to 25 foot.

At the 2 1/2 percent power before levelling off and accelerating to vbrock and reducing to Max continuous and then climbing the further 300 foot from three 200 to 305 hundred foot at the normal V block Max continuous power sitting.

MP **Mark Prior** 2:12:22

But that is that differs from what the checklist says, because if you read the checklist for this, it says climb to to 200 feet above the take off.

Surface. Then do your cheques and excel accelerate. Now if you had had had gear that could be raised, you would raise your gear. These are aircraft have have fixed

gear.

So that is, that is what we've done. We've tried to align with what you did first and with the and with the manual. But perhaps if we just jump to the next slide because because that shows how we compare with you. But if we sum all of these figures up and the turn and and again.

NB **Nigel Blackstock** 2:13:00

OK, we'll see.

MP **Mark Prior** 2:13:18

We've allowed.

A bigger and distance for the rate one turn.

We have have taken a worst case, so there's no wind effect for the Accel phase, which in fact you would be allowed to under the OPS rules. That comes to a distance of 1.4 miles. Now if we go to the next slide.

NB **Nigel Blackstock** 2:13:45

So I know you're rushing through this market of timelines, but I would certainly, I don't want to rush through it because I would like to comment on each of these as to how we feel about it because we disagree with a lot of it.

MP **Mark Prior** 2:13:53

Right.

So are you then saying what you did at the start was completely wrong?

NB **Nigel Blackstock** 2:14:05

What we are saying is that we worked everything out above takeoff surface.

MP **Mark Prior** 2:14:09

Yeah.

NB **Nigel Blackstock** 2:14:10

Both the 200 and the 500 because it states very clearly on the on the profile, in the RFM that it's above take off surface.

After you critique it, we took another look at it. We said you actually quite right, the

part cannot 200 foot above take of service. He doesn't know that means he has for every single take off he needs to know exactly what the half the heli deck was, what is? So what he's seeing in the cockpit is 200 feet, so we've worked it, reworked all our calculations, our distances out and above mean sea level.

Both based part one and Part 2.

'Cause, that is how happens in reality in the in the cockpit.

MP **Mark Prior** 2:14:56

I would disagree because because certainly the flight manual talks about ATS for the first phase. Secondly, as part of your your take off brief and bear in mind a lot of these, would you use the autopilot pilot up a modes as well so you could re so you could set those two heights.

Above the deck, so all of those things.

Would be applied. The only point we differed on is what point you make the turn, and we said you couldn't do climb to to 500 feet above the deck because because you could have have a a low cloud base so you would commence the turn at about 500 feet above the sea. That's the only point on on which we.

Differed.

NB **Nigel Blackstock** 2:15:53

To my understanding, unfortunately so.

The profile states very clearly in the manual that says all heights, regardless whether it's a 200 or 500, is above take up surface.

Now.

From my point of view, we either need to do everything at above mean sea level or everything above above type of surface in reality above means sea level makes sense because that's what the parts are seeing in the cockpit.

MP **Mark Prior** 2:16:21

Yeah, but if you follow the RFM you you fly above the take off surface, you then level below cloud you would not fly in into to cloud. So that is the only thing I I said you should that one point that should be above sea level but.

NB **Nigel Blackstock** 2:16:34

No, certainly that that that's what makes it.

Yes.

MP **Mark Prior** 2:16:45

Let's let's think about on on shore as well, because we work out alertitude on onshore on on shore.

Now we would fly the similar profiles on onshore part of the pilot's take off, brief would say in the event of an engine fail failure, we will fly to this this height we will then.

Do the.

Level excel. We would then change down to Max comp power. We would then continue the height. That's all part of the pre flight brief.

NB **Nigel Blackstock** 2:17:20

So I'm going to once again disagree with with that in all the observational flaws I've done over the last couple of years, not what I have briefed a heart to climb to they've they've talked about. We will continue in accordance with the the manual or the company requirements.

MP **Mark Prior** 2:17:36

Yes, and that is a short and brief and the manual will actually set out.

The heights to be flown to.

DU **Denis Ustich** 2:17:47

I think gentle gentleman.

CR **Christopher Rowland** 2:17:47

Maybe Dennis, if you want to jump.

NB **Nigel Blackstock** 2:17:48

Yes.

MP **Mark Prior** 2:17:49

Right. Shall we just differ here and and move on to the next slide because because

this compares your your submission and hours and I don't think you'll find we're actually that far apart.

DU Denis Ustich 2:18:02

I think gentlemen just out here as we're talking about the aviation safety here, we shouldn't be forgetting that our operational requirements as well as you know we operate a multi shuttle operation with a different helidecks and different elevations as well. So we need to adopt the consistency.
On the take off position because we.

OG Oliver Gardner 2:18:24

I think I think this is the one. This is the worst case because this is the CPC is the IS, is the platform that will have the turbines closest. So any figure that's safe for CPC would then be safe.

DU Denis Ustich 2:18:35

Yeah, yeah, but I'm talking. I'm talking about the consistency in the field as well as we. If we're introducing different requirements for different installation, then on the on a day particular day pilot may end up in a failing to comply with the requirements and we you know as you all know probably from a vision point of view, we need to have a standardisation across the operation.
We cannot apply different requirements for each individual platform.
To take off for each individual scenario, we need to have a standardised approach here and.

MP Mark Prior 2:19:09

Yeah. And yeah, I hear at that point having flame off offshore for 818 years.
We still do a a take off brief from each of the decks.
So yeah, that's that is a a a given. Now shall we just move on on to the next slide because this does compare the two and it might be worth looking at.

CR Christopher Rowland 2:19:40

So I'd like to also get on to the IMC corridor as well. Mark, if we can try to squeeze that in now, I appreciate. Well, there's a follow up, a follow up action probably for.

MP **Mark Prior** 2:19:44

Yes. Yeah, yeah, yeah. So if we we quickly go here.

So you see, if we align with what Aviatec did, but let level at at 500 feet above sea level, we come to a a distance of of 1.4 miles now.

Your assessment at at start came up with 1.76, but that did include the extra climb, so that was 500 feet.

Above Heli deck height if we.

NB **Nigel Blackstock** 2:20:22

No, that's incorrect, mark. Sorry, that's incorrect, so.

It was actually one point.

84 with the helide Deccan with 500 foot above Heli. Descartes.

MP **Mark Prior** 2:20:35

Right. OK.

NB **Nigel Blackstock** 2:20:36

And then down to 1.7, if we go above Minc level.

MP **Mark Prior** 2:20:40

Right now, if you factor in in the figures of of yours and I I went back to your your first submit mission and it says the your flight path 2 which would be a climb of 300 feet would require .68 of of a mile. But if you reduce that.

To take account of of levelling at 500 hundred feet above sea level.

That cuts that down to a a total distance of of 1.34.

So we aren't that far apart, and both of them are less than 1.5 miles.

NB **Nigel Blackstock** 2:21:25

And I disagree. As I said, because we've got our initial plan.

To to 200 foot and not 200 foot above type of surface at this time at this stage.

Of the reassessing what you guys said initially.

MP **Mark Prior** 2:21:43

I think you you.

They didn't take on on board the actual point, which was you've followed the flight map manual, so you climb to 200 feet above the take off.

Surface you do the Excel, you continue the climb under flight Path 2, but instead of flying into cloud, you level at 500 feet and make a turn.

NB **Nigel Blackstock** 2:22:11

Yeah. So we've got a basically disagreement with how the flat path one goes.

DU **Denis Ustich** 2:22:11

It.

MP **Mark Prior** 2:22:16

So you are are not following the flight manual then.

DU **Denis Ustich** 2:22:20

No, I think Mark, what's worth just mention here that based on that discrepancy that that take off point is at 184 feet, the recalculation been made.

And the distance requirements reduced from 1.84 to 1.7.

MP **Mark Prior** 2:22:41

Flight map manual say which is a a.

Daydream document says fly Flight path 1-2 hundred feet above take off surface so it means you are not complying with the mandated checklists and.

And so on. So you are, I'm not following.

DU **Denis Ustich** 2:23:02

That's that's where the reduction will be made and we reduced our distance by .14 of a mile.

NB **Nigel Blackstock** 2:23:12

I understand what Mark's getting at.

But no, I disagree with that. It is once you've had an engine failure, your first thing is going to be is clamping to 200 foot.

But and we said, it's about me sea level. And then there's also.

OG **Oliver Gardner** 2:23:26

I think I think there's an action, so I think there's an action here to confirm what the manual says, because I think it's from a layman's term, from my point of view, it's very clear if the manual says you do something, you have to do that. And I think Mark has set out very clearly why the calculation he's done is compliant with it. And and Nigel, if you're able to look into that again and just confirm whether you are following the manual and if you're not, why not? Because I think it's this is a pretty black and white one to me in terms of.

MP **Mark Prior** 2:23:32

Yes.

NB **Nigel Blackstock** 2:23:52

I'll just be just be fully aware that.

MP **Mark Prior** 2:23:52

Thanks and and in fact, if we look at, yeah.

NB **Nigel Blackstock** 2:23:55

We've we've run all these things past the current operator who have agreed with what we're saying.

MP **Mark Prior** 2:24:02

Well, we do have the the scans of the flight manual graph, so if those are shared, they do say flight path 1-2 hundred feet ATS. So I think you will then need to make a case why the operator is not complying with the manual, which would surprise me but.

So, shall we take that as an app action?

CR **Christopher Rowland** 2:24:30

That's that's. Yeah, let's capture.

MP **Mark Prior** 2:24:32

And and then move on.

CR Christopher Rowland 2:24:34
I'm just conscious of time. I appreciate. I appreciate we've run run to time now. I would like to continue if if people have a little bit more availability perhaps 2020 to 30 minutes maximum.

MP Mark Prior 2:24:34
Because time is short.

CR Christopher Rowland 2:24:48
Would that be OK for the remaining persons on the call to just continue and close this this aviation piece?

OG Oliver Gardner 2:24:58
It to Nigel and Dennis, I guess, yeah.

NB Nigel Blackstock 2:24:59
OK. I'm I'm I'm OK.

DU Denis Ustich 2:25:00
Yeah, yeah, I I I I can stay here.

OG Oliver Gardner 2:25:02
Thanks, Danny. Thanks.

NB Nigel Blackstock 2:25:02
OK.

CR Christopher Rowland 2:25:05
OK, then, yeah.

MP Mark Prior 2:25:06
So we have the action which I think is on us to share the share, the section from the RFM.

OG **Oliver Gardner** 2:25:13

Yeah.

Daniel.

MP **Mark Prior** 2:25:22

Similar case applies to.

Imc and I don't think we should, should.

Go through it now, but we have done the flight path 1 to 200 feet above the deck.

Excel, then a climb to 1000 feet above sea level, then.

May turn so a a similar case of.

A A applies here. So perhaps if we were to to move on to yes, this is quite a handy slide.

I've certainly we do appreciate that there will be an impact on I, MCN at night for flights to CPC one. So we looked at what would be the biggest bang for a buck if.

We were to take out a section of the wind farm and based on the Charter on the right hand side, which shows the prevailing wind.

And IMC, if we could take out a section to the Southwest, that would be the biggest help. Now, of course the perfect thing would be a 360°.

Circle, at which point we cancel the project as a whole so.

Looking towards the Southwest this will this will be for the.

Take off.

Because I I think we can all agree that there will be 9 miles free to the NE to do the approach.

And I'll just stop there for comments.

DU **Denis Ustich** 2:27:19

I would agree that the Southwest 225-2220 is a predominant wind which is around 22% of average annual wind. So technically the aircraft can approach from Northeast as you're describing along like zero, forty direction. However, this need to account for.

Hill deck orientation on CPC wind restriction factors on CPC and obstacles on CPC.

And also was it's 22% of the dominant wind throughout the year.

What's happening with the remaining 78?

MP Mark Prior 2:28:04

Yeah, but yes, I I accept throughout the year, perhaps it's 22%, but that is for VMC as well. So what we we've done it is to look at the I MIMC case. So for I, I MC it's much much bigger than.

DU Denis Ustich 2:28:15

For for everything, yeah.

MP Mark Prior 2:28:25

22%.

OG Oliver Gardner 2:28:28

You know that or what? What? What portions of the year would you have reduced access? 'cause. It's imc. And at those times, where is the wind coming from? Because there's a different piece because it doesn't matter in, you know, in in our case, where the wind's coming from, when it's when it's daytime. Vmc conditions because, you know, the 1.5 that we've, you know, consider give sufficient means that you can take off and land in any in in any direction. You only need to concern yourselves with the wind direction for when the conditions are are in IMC. And that, as, as Mark says, is much higher than 22%.

DU Denis Ustich 2:28:58

Yeah, correct. But well, there is a.

MP Mark Prior 2:29:00

And and looking at this chart on the right, of course you will lose.

Imc access with the wind from the South East and from the few occasions where the wind is from the north because of course you cannot make an approach through the wind farm itself.

DU Denis Ustich 2:29:24

But the worth to add to that is that.

The operations in those conditions, I mean the IMC corridor are only applicable under the current C regulations for CPC take off only it's not applicable to Calder and

it won't be feasible to operate when or should C will change its regulations because we will be still closer than three nautical miles of the wind farm.

MP Mark Prior 2:29:52

Yes, and that is that is why we have have proposed the Altmark route and the. CAA have have made their comments as you saw it, it's a bit soon, but they certainly didn't say no. Now I'm just picking up up on the.

Colder points there. If we do have have this in place and you are talking about a prevailing wind from the Southwest, that will actually.

Give them IMC access as well because because they will be more than one mile laterally displaced from the obstacles.

So we've we've talked about.

CPC one because we see that is your biggest issue, but it does help help the.

Coal loader and as well it might might help help ones like.

DP6 as well because because it moves the wind farm further towards the South and southeast.

DU Denis Ustich 2:31:10

But the older proposal is based on Git getting canal mock from CE and.

MP Mark Prior 2:31:16

Yeah.

DU Denis Ustich 2:31:17

The via Spirit and aviation from our aviation provider, we are not aware of such outmods being granted and also how you will consider the outcome of the regulations which haven't been introduced. So you don't.

MP Mark Prior 2:31:44

Yeah.

OG Oliver Gardner 2:31:44

Right. Just.

DU Denis Ustich 2:31:44

They were not referring to in any other operators. They were clear that they looking in the keys and they were clear that the regulation will come at some point, either end of this year or next year, that they're working on it, but they were not clear of how they will see this. This will be applied and what kind of out marks will be applicable to that or how the other operators will be adhering to those regulations.

OG **Oliver Gardner** 2:31:57

I don't think, OK.

MP **Mark Prior** 2:32:10

But I'm I'm certainly aware of. I'm sorry. Sorry. I didn't mean to, but in there.

DU **Denis Ustich** 2:32:10

So so.

OG **Oliver Gardner** 2:32:10

With you, Dennis, that that's what they said.

Yeah, that's OK.

MP **Mark Prior** 2:32:18

I'm I'm certainly aware of at least one operator on on the North Sea that is looking for an Altima for.

A for an an existing and wind farm and their platform, which is about 2 1/2 miles away. So so that'll be the the tester case I'm I'm sure.

DU **Denis Ustich** 2:32:43

I'm I'm not sure how they can look at it because there are no regulations requiring for that right now. So we'll see me considering of something in the future. At the moment there are no requirements for out mock and everything. What what they can do is to apply operational restriction through their OPS manual. So at at the moment and based on aviation provider forum, which I think we all see in mid minutes of meeting, they all come came up with that number of.

Files and our revision operator adopted those numbers in their OPS manual already as part of the agreement between all of them.

So at the moment, they're already adhering to free logical models, rules. Some of the

other operators may have the same, and that's where they they potentially considering a lowering that requirement. Other OPS manuals, but there are no physical requirements for outmoded right now, so we cannot use it as a base case.

MP Mark Prior 2:33:44

Yeah, there are. Are currently two operators on on the North Sea that are are doing that I MC approaches to decks within 3 miles of of the wind farms.

CR Christopher Rowland 2:33:59

And I think this comes down to the, you know, the coexistence point and and you know the need to look at solutions to challenges in in respect of of of you know having energy generating assets next to each other. You know we I think that would be expected by a government that we look at those solutions in good faith because you know that is what's needed.

DU Denis Ustich 2:33:59

No.

CR Christopher Rowland 2:34:24

For these assets to to cooperate.

RM Rae-Anne Marr 2:34:26

I'm sure we can also appreciate that looking at precedent, you know, we need to look at this on its own merits. So I'd be interested to see the, you know the compatibles here because you know 11 perception. I mean my understanding and appreciate I was you know, one step removed from the conversation around the ca, you know, the CA was also it was obviously in a place where it needed guidance from the operators as to a safe distance. We believe the three came out of that forum as almost a conservative view I believe.

There was challenge about she did not be more so I think that for us that uncertainty around that number and also drawing on precedents, I mean it doesn't mean that just because someone else has deemed it safe that it is safe. You know you see in history something happens and then you know everyone looks at and you know revisits regs and and legislation. So I think there just needs to be an appreciation that pooling across mitigations.

That may be, you know, deemed acceptable at the time that they may be outdated. Stunned the conversation that's on ongoing, so they can't necessarily just be pulled over.

CR Christopher Rowland 2:35:33

Yeah. No, I think that's fully understood. And I think the CEA guidance, you know that that's sort of general industry guidance. I think we obviously asking here to look at this case by case and and we also asking for you know lower limits and that that guidance sets out.

The point regarding the IMC in the corridor, I don't know, Mark, if we can clarify, but I think we understood this. This mitigates about 62% of of IMC access.

MP Mark Prior 2:36:00

Yes, that's on on the next slide. Perhaps if we move move on to to there and this if we take it into account.

CR Christopher Rowland 2:36:02

And.

MP Mark Prior 2:36:12

The approach and the take off it is done exactly in inter wind and and sometimes you can fly slightly out of wind which would increase the access but this gets you back about 62% of your day IMC based on on the flights that were flown and so this.

RM Rae-Anne Marr 2:36:36

And is it a? Is it?

SG Susan Gair 2:36:36

Can I? Can I just check? Oh, sorry, Dennis. I just. No, no, I'll let Dennis go.

MP Mark Prior 2:36:38

Yeah.

DU Denis Ustich 2:36:39

I think I think how how it was assumed is that it's in in conjunction with the arc

proposed arc as well. So that was coming to 62.9%. However, I think we internally couldn't replicate the numbers for for that.

SG **Susan Gair** 2:36:58

Think that's my question was I was just gonna ask. Yeah, that's what I was gonna ask because I'm struggling to understand. And it's probably just my understanding but struggling to understand where that 62.9 comes from.

RM **Rae-Anne Marr** 2:36:59

Obviously there's 62.

MP **Mark Prior** 2:37:10

The data.

Allowed a wind art from 2260 clockwise round to 090.

Daytime IMC can additions matched that on on to the flights that you have made and and we do give give a full.

Breakdown of IMC and flights and things in in our reps and from that it it came to 62% of the flights.

Could have gone ahead at the time that they were planned, so we've not allowed for for flights to be moved or slipped. And so that would cut down the day IMC impact from about 5.8 down to about 2.2. So there is impact still, but it's a lot less than it was.

SG **Susan Gair** 2:38:10

And I think you notice something on one of the earlier slides about. It was only in. It's only in certain wind conditions or you've only looked at certain days, certain days that had those wind conditions or was it looked at all days and then looked at the percentage of days that had those wind conditions. How did you, what was the baseline?

OG **Oliver Gardner** 2:38:16

That's exactly, yeah.

MP **Mark Prior** 2:38:22

It it.

OG **Oliver Gardner** 2:38:23

That's the point, yeah.

MP **Mark Prior** 2:38:24

Yeah, yes, it it looked at all all of the the data that we have had from you and said which of these?

10 minute minute blocks were IMC and of those where was the the win from at that point? So that is where that wind rose came from.

OG **Oliver Gardner** 2:38:51

Essentially, the wind that the weather that causes the conditions to be IMC is associated with certain wind directions. Obviously, the prevailing wind coming from the Southwest means it's, you know, more likely that the weather in those conditions is such that you're into IMC conditions. So that's why it's not a it's not a 62% of all, it's only 62% of those occasions when you will be in IMC conditions. So that's that's perhaps the step that you didn't have.

MP **Mark Prior** 2:38:56

Yeah.

OG **Oliver Gardner** 2:39:18

When you look at the the the whole arc, because obviously what we're saying is for the majority of the time, you know.

It's day VMC. There is no need to consider the the corridor and to consider the alloc because you know you would, you would still be flying, you know, in what we consider 1.5 and appreciate. There's still a discussion to be had there around whether it's 1.5 or 1.76, but that is that, that that is that step that perhaps you hadn't done, which is to to to to realise that when we talk about the the corridor, we're looking to mitigate the weather from a particular direction. Sorry Jonathan.

SG **Susan Gair** 2:39:49

OK, so if it and that.

DU **Denis Ustich** 2:39:49
Judge Johnny Judge on you.

MP **Mark Prior** 2:39:49
Yeah, I see a raised hand. Yeah.

SG **Susan Gair** 2:39:52
No, no. And then and then what we're we're saying here is then and that's on 10 that's on 10 minutes. That's on the 10 minutes slots. So it's so that's saying it's is that 62% of the 10 minutes slots that has a weather in a certain manner or wind coming from a certain direction.

MP **Mark Prior** 2:40:08
Yeah, that is that is 62% when the weather was IMC.

SG **Susan Gair** 2:40:18
Sorry, Johnny, if you I think you've probably got similar questions to me because it's on the analysis.

MP **Mark Prior** 2:40:19
Yeah.
Yeah.
And you're on mute, I think.

CR **Christopher Rowland** 2:40:25
Budget.

OG **Oliver Gardner** 2:40:29
At least it's dissipate. Are you dropped off? Oh, no. Locked him. No, he's saying.

MP **Mark Prior** 2:40:30
It's just so.

SG Susan Gair 2:40:31

I know.

CR Christopher Rowland 2:40:35

Because I understand it, it's it's, you know, the weather, the weather is foggier when it's coming from the southwest. So the visibility would be worse and therefore you'd be in IMC more often.

SG Susan Gair 2:40:36

OK.

OG Oliver Gardner 2:40:40

Yeah. Yeah, basically, yeah, yeah.

DU Denis Ustich 2:40:40

No, no.

SG Susan Gair 2:40:43

OK.

DU Denis Ustich 2:40:44

No, I think there is more weather coming. That's what the predominant direction is southwest. So it's it's just the case that there is more wind coming from this direction, hence why the percentage of of fog here weather is also higher than from the other directions.

OG Oliver Gardner 2:40:48

Period.

MP Mark Prior 2:40:50

Yeah.

JC Jonathan Clarke 2:40:59

Can you hear me now?



Mark Prior 2:41:00

Yeah, yes. Yeah, we can do that.



Oliver Gardner 2:41:00

Yes, we can. Yeah, got your back.



Denis Ustich 2:41:01

Yes.



Jonathan Clarke 2:41:02

Yeah. So sometimes my headset times out, yeah, if you could just confirm what degrees in that circle you're sort of counting for that 62%, you know, are you counting between 200 or and 240? If you could just confirm that, I can very quickly just.



Mark Prior 2:41:16

It's from 22260 clockwise round to 09.

Zero. So those are our approaches which keep you outside the red buffer.



Jonathan Clarke 2:41:31

Right. So sorry, so 09/02, so 226, yeah.



Oliver Gardner 2:41:35

Anti clockwise.



Denis Ustich 2:41:35

To 22 is yeah.



Mark Prior 2:41:37

220 clockwise round 2090.

Yes. Yeah.



Jonathan Clarke 2:41:47

Like of not just that bit that's pointing to the right, got you.

OG **Oliver Gardner** 2:41:47

Yeah.

MP **Mark Prior** 2:41:48

No, no. And and that complete arc gives you a one mile lateral clearance from the wind farm.

OG **Oliver Gardner** 2:41:49

Yeah.

MP **Mark Prior** 2:42:01

Which of which, which you've got to have for an IMC approach or a take off.

DU **Denis Ustich** 2:42:09

On the basis that no regulations will come in force and.

OG **Oliver Gardner** 2:42:12

Of course, yeah.

MP **Mark Prior** 2:42:13

No, no, that is the current current rule and and and that is a hard rule which the AMC will not change.

CR **Christopher Rowland** 2:42:27

Yeah.

MP **Mark Prior** 2:42:28

So you need at least a mile clear.

DU **Denis Ustich** 2:42:31

Yeah.

CR **Christopher Rowland** 2:42:32

So so I think I think.

JC Jonathan Clarke 2:42:32

OK. Just out of curiosity, I got 47% for that range in IMC, just heliport open, but doesn't matter.

OG Oliver Gardner 2:42:39

Yeah, it's not.

MP Mark Prior 2:42:39

Oh, it's oh have have you include included night? Because I I've got a separate one for night. This is day night. It is much smaller.

JC Jonathan Clarke 2:42:51

I've just done heliport open when our model says it's IFR and I've just again summed up the 10 minutes. So it we got 47% on that.

MP Mark Prior 2:42:56

Oh, right, OK. You've mixed mixed day and day and night there.

DU Denis Ustich 2:43:03

I think it's it's quite valuable discussion around the IMC as well and potential regulation change, but also there is a element of night where the night has its own requirements for approaching the installation.

SG Susan Gair 2:43:04

So.

OG Oliver Gardner 2:43:07

In.

MP Mark Prior 2:43:17

Yeah.

DU Denis Ustich 2:43:18

And also the takeoff will will be the same, but the approach will be different.

I I I think the main key factor for us here is subject to the new regulations. Where you know if it comes in force. And as we heard from C8 will in one way or another.

Then we're already sitting in the environment that there is a wind farm next to us and we are unable to operate without out mock, which we may not be granted because we don't know even how to approach for it and also the element of how we can physically deem safe to operate at night, for example, or even night at IMC. As comparable as they.

MP **Mark Prior** 2:44:08

I get those points now if if you look in our Rep 2032, that does have the same wind rows, but for night as well because we've split out day and night. Can we move on?

CR **Christopher Rowland** 2:44:25

Yeah, I think the point would if we could.

SG **Susan Gair** 2:44:25

I think what would be quite useful I think. I think sorry if I was gonna say it would be quite useful as if if you could provide us sort of a bit of that background as to I'm still I'm still unclear as to how you're getting to the 62% and what that's of. So rather than us going and breaking through the reps and trying to decipher data and and maybe come up with the wrong answer, it might be useful if you could actually point us to that background and it could just be and my team tell me.

DU **Denis Ustich** 2:44:37

Yeah.
Yeah.

SG **Susan Gair** 2:44:50

Tell me if I'm if I'm asking silly questions because you guys all get it and I don't. I still don't understand. Taking aside even the ultimate part for the night. And the senior part, I'm still struggling to understand. This corridor mitigates as much as you say it does, so that's where I'm struggling to get that baseline understanding. So anything you can do to help me get that, get my

understanding up to where it should be or or alley my concerns then then that'd be much appreciated.

MP **Mark Prior** 2:45:19

Sure. And and perhaps the the best ways to flag up the bits in our reps that explained it explained this and Dennis you you had your hand raised.

RM **Rae-Anne Marr** 2:45:30

I think in.

DU **Denis Ustich** 2:45:31

Yeah. Yes. Then another element, of course, as we're talking about to 22, zero is 90 is around. How would then how we physically take off into the winds from other direction if we need to overfly the wind farm, which we cannot so.

I think I think there are. There are several elements here about the the arc N to.

The CPC, in which is used in conjunction with the the corridor where the aircraft, you know if it goes along the path of 040 going down and take off the corridor, it's one story. But for example, if we're approaching from north maybe we can then take off into the wind farm or this and vice versa. Vice versa, we cannot approach from the wind farm.

MP **Mark Prior** 2:46:18

Oh, you cut? Yeah.

CR **Christopher Rowland** 2:46:20

No.

DU **Denis Ustich** 2:46:23

Direction to use that unobstructed arc.

CR **Christopher Rowland** 2:46:27

Could I?

MP **Mark Prior** 2:46:27

Yes. Yeah.

CR **Christopher Rowland** 2:46:30

I think it's been a really, really constructive discussion. I do appreciate that, I think.

MP **Mark Prior** 2:46:33

And could we just quickly go to the second to last slide please, because I I think that will help.

CR **Christopher Rowland** 2:46:40

Can we just conclude? Yeah. Can we just conclude on the IMC action here? Just just that we mark will share this this pack which we have, but but also supplement with some commentary on the assumptions and then perhaps requests for Dennis and Jonathan to to sort of review and respond. And if you have a sort of counter analysis or additional assumptions that you want to feedback, then we'll we'll take that on board and and can review that.

MP **Mark Prior** 2:46:44

Oh, right, OK.

SG **Susan Gair** 2:47:07

So I think what what I'm looking for is I'm, I'm still struggling to see that this does exactly what it says, but you see that it does. So if you can, when you're providing these, if you can provide, you know, provide the the background, provide the explanatory notes you know show us you know how you substantiate your your findings here, it would be really, really helpful for me because right now I'm I am not seeing that this is doing for what it says in the tin.

So it's really hard for us to then say, oh, you know, here's a here's a here's our analysis. Here's this. Here's that.

We're looking to try and understand yours first, so you know. Please help us understand it. That's my request.

MP **Mark Prior** 2:47:43

Yeah, sure.

CR **Christopher Rowland** 2:47:46

Yep, Yep. Well noted. OK, then let's maybe just conclude, Mark, if we can for the.

MP **Mark Prior** 2:47:48

Yep, and.

Do we have have time for this or or shall we just go to the second to last slide which loops back to the?

1.5 mile case.

I'll, I'll take you your steer. Oh, I'm sorry. Sorry. The next one up.

CR **Christopher Rowland** 2:48:11

This one.

MP **Mark Prior** 2:48:11

The last, yes, the last question in in the bullets was please explain where 1.5 miles is deemed safe for day and VMC. We've put together a a list there. The third bullet down was an NPI and working up over the White Haven and rail wells.

Which I believe are yours are yours. And there were turbine. There were turbines.

1.121 point 3 miles away. So that's that's perhaps something you've done in in the past. We talked about nhv not liking to to fly close to a wind turbines but and as we know, they do wind and the turbine work they've picked up. That's some the other side of the North Sea.

They've won some on this side of the North Sea and I think it was about two.

Weeks ago, they put out a press release saying that.

They intend to do a mix of a wind farm and oil and gas work, so I think perhaps if the Blackpool team were to tap it into the the larger group they might get a steer there and perhaps have some of their fears are laid.

DU **Denis Ustich** 2:49:45

I say I think again the examples are not comparable here to a type of operation, so we'll speak. We can say that. Then if we for example, contract with Vestas for crew changes and hoisting operation, that's separations in Denmark. The examples here where double X of only extension which we we own the XF real well that's sub C wells and we have our own commercial agreements with the whole new wind farm.

And the same for other.

This your process as as you described and harbour energy once, so we cannot comment on the type of their operation if there are any operations like so. Well had it's a subsid template and the same for the extension.

It's we don't know the content there as we don't know what kind of operational requirements, what kind of aircraft, what kind of commercial compensation agreements they have, that's why it's we cannot really comment on that. We're looking at our own specific operation where we conduct more than 1000 flights a year. We we conduct around 5000 landings a year, not one or 200.

So it's a different scale of operations.

20 aircraft types and that's where we're looking at our own specific operation against the specific uniform. So hence why we for us, it's impossible to comment on such types of operations here.

MP **Mark Prior** 2:51:10

Yes. And I I take those those points, but the mere fact that these flights occur on on a daily basis with a a distance of of less than 1 1/2 miles means that they are safe because if they if.

SG **Susan Gair** 2:51:23

So I guess that's not really what we were asking, Mark. I mean for us, you know for example real does not happen on a daily basis, it's 2 sub C wells, there's a vig there from time to time. So it's not a daily basis. It's not like what we're doing in the operations like what Dennis was describing. But I think the point of this slide's been slightly missed. And I think what we asked is for you to for the applicant to explain, you know how you, how you get to the assertion that you think 1.5 nautical miles is a safe aviation buffer for.

MP **Mark Prior** 2:51:36

Yes.

SG **Susan Gair** 2:51:53

That you say to see operations so not to explain that it's been done elsewhere in different sets of circumstances, there aren't, you know, similar to what we're doing here, but it's we're really struggling to see how 1.5 is a safe aviation buffer based on

all the information that we've talked about today with what you know, Nigel's discussed, what we've all discussed in various meetings. It's just really, you know, if there was something that we're missing, if there's something that you're doing other than pointing to other people, do it.

You know it other than pointing to that can can we?

You really get behind your beans to try and understand why you think 1.5 is a safe aviation buffer for the Morecambe Bay hub operations, so that's what we're really looking for. So I think this is slide sort of missed missed that that ask a little bit.

OG **Oliver Gardner** 2:52:32

Did that.

MP **Mark Prior** 2:52:34

Derek, yes, yes, there are two, two points here. First of all, it is 1 1/2 miles. Safe enough for an aircraft to approach and land, and then to take off all of these.

Cases show it is because if it's not safe because yes, yes, because if it was not, they would not be approved.

DU **Denis Ustich** 2:52:58

And they did, they VMC.

OG **Oliver Gardner** 2:53:00

Yes.

MMM.

MP **Mark Prior** 2:53:04

The second bit is the bit that DNV is addressed on the impact on on your your shuttling operations. Now that it is a different question, I think, but purely from an AU, from an A aviation point of view is 1 1/2 miles safe for a helicopter to approach and depart. The answer is yes, because if not, the CAA would have stopped all of these.

RM **Rae-Anne Marr** 2:53:35

Well, I think so. I think what I'm hearing from this and it's back to Susan's point is the the first part of that response around the 1.5 being safe, we would like to see an

answer that just doesn't point to precedent because just because there hasn't been an accident and there's been deemed safe and other circumstances where that distance was deemed to be appropriate, what we're trying to get at is what what other than pointing to others who are doing it currently, you know without.

You what? What makes it safe? I think that's the bit that we are missing and I think it's a little bit to the safety point in the DMV front as well as we're trying to cut through the precedents that keep being thrown at us and actually based on the material in front of us on our operations and our airframe, why is 1.5 enough? And we are, I think we put forward, you know, standalone information we could have pointed to operations where.

There's a wider buffer. I think we need to cut through the precedents because we could go through each of these and see why it's not like for like.

OG **Oliver Gardner** 2:54:39

Spent 15 minutes going through those calculations. At the start we did.

MP **Mark Prior** 2:54:39

Yes and yes. And and that loops back to the point about the the flight manual graphs and and we will send you through the full scanned copies now that it. Yes, yes, yeah.

CR **Christopher Rowland** 2:54:39

Yeah, I I.

DU **Denis Ustich** 2:54:39

And I say.

OG **Oliver Gardner** 2:54:47

Yeah.

RM **Rae-Anne Marr** 2:54:51

I haven't seen those so.

DU **Denis Ustich** 2:54:54

I've I've I I think just to point out here that we're talking about the isolated environment of the VMC operation. We're not talking about night VMC operation.

We're not talking about IMC and and night IMC as well, which are also having a detrimental impact on us. So. So, you know, we're we're we're talking purely about isolated environment of a good day of a flying and we see visual.

OG **Oliver Gardner** 2:55:01
Yes.

DU **Denis Ustich** 2:55:19
Platform but but but but. But it's not the way how we operate. We operate fraud the whole year in all conditions.

OG **Oliver Gardner** 2:55:19
Which is the majority of the times when you're flying.

CR **Christopher Rowland** 2:55:20
Yeah.
No, we it's it's well understood and I think you know we're trying to address both the the visual conditions.
Point here. We have also discussed the IMC conditions and IDE operations. We we want to get closer. Shared understanding of those topics. I think to the safety points you know we do see this as you know presidents and industry. You know Presidents takes takes a view here because you know safety is.
A. It's a subjective matter, let's say, and you know, I think we can only look to industry best practise to, to.
To to make reference to what is considered safe. So I think that's where we draw parallel to to presidents and that's where both the safety safety case, you know topics and the the aviation topics you know we have to look to, to, to industry best practise as a as a guide to what is considered.

DU **Denis Ustich** 2:56:20
Yeah, but the some of the presidents here, there are no operations taking place at all. So like so full year extension or harbour energy, you Johnston will head, there are no operations here, but.

MP **Mark Prior** 2:56:30

Or perhaps if we could just go on on to the next slide minute.

This shows.

A. A Jack up working out over the Blythe and Nhv were flying to this from Norwich.

SG **Susan Gair** 2:56:47

And again it's it's a, it's a Jack up working over a wellhead. It's not operations like we've got in the East Irish Sea. So it just goes back to that same question.

OG **Oliver Gardner** 2:56:53

We we provided the we had a quite long conversation about the calculations where Mark pointed out that the calculations he's done that demonstrate that 1.26 is the you know is the safe number taking account of the CAP guns is currently written and not adding any additional requirements that aren't supported by the guidance and using the flight manuals that are a requirement. Correct me on Mark.

That, that, that the operator follows. So we we spent quite a bit of time at the start of this section on aviation explaining why we got to a number that is below 1.5.

So I think we've covered that off in terms of why 1.5 is safe, because we've done the calculations. We're just giving you the additional comfort by by, by, by sharing this precedent which which supports that calculation that we've done at 1.5. So I think the 1.5 have been well covered earlier on and obviously, I'd take that there's an action for us to provide a bit more information. But you know, it's very clear from the calculations that we've done that 1.5 is, is a safe distance.

DU **Denis Ustich** 2:57:46

Yeah.

RM **Rae-Anne Marr** 2:57:50

OK, well, I suppose it's it's.

DU **Denis Ustich** 2:57:50

The the, the, the.

SG **Susan Gair** 2:57:50

So OK, let's just point out there that that's in your opinion, it's a safe distance that so we spirit don't agree that that's a safe distance. Neither does our aviation expert. So I

think on that point there you know we need we need to just point out that we're both in disagreement on that and remain in disagreement based on today's conversation on that because I didn't hear there to be anything that told us that we were incorrect in our calculations or incorrect in what we were doing.

OG **Oliver Gardner** 2:57:54

Yeah, yeah, of course.

Yeah.

OK.

SG **Susan Gair** 2:58:15

I think we're semi aligned, but there's the points of different different distances for different parts of those calculations.

It's, but it's still disagree. Are adequate enough in your calculations. I'll let Nigel speak to that, but it's that it's my summary of where I got to.

RM **Rae-Anne Marr** 2:58:29

Can I use that done before you?

NB **Nigel Blackstock** 2:58:33

Yeah, I agree with what you said, Susan.

CR **Christopher Rowland** 2:58:36

Yeah, maybe just to try to summarise and capture some some actions for the way forward here.

As I understood it, we, you know from from our side, we will share those those calculations including the the paragraphs and.

Would request for for, for Mark and Nigel to to perhaps review that again.

Together and and to see if there is.

Further clarification and and you know confirmation on that that calculation for for the 1.5?

I think that would be that would be the first action that I'd capture here.

RM **Rae-Anne Marr** 2:59:17

But I think can I just say on the 1.5 please just in response to to Oliver's comments

there, you know it's it's still not clear to us an element. So although you think it's been explained it's a bit like our Cox and our view we've come back and we've challenged ourselves to really get behind, it's almost the inner workings behind the scenes. This is how we've got to this and we've had a lot of we've added a lot of like guidance material so that anybody could pick up our numbers hopefully. And not have to be in the weeds of the technical detail to understand it. What we're asking is for you to return the favour and to talk us through that to the point of not having to be an aviation expert, to understand the point and also, you know, cutting through the precedence. So I think the ask here isn't just to deem it, as we've explained it and that's enough. It's it's not enough. There's a real desire to understand where those numbers come from. So if you, if you could please take that away in the context of this meeting.

CR **Christopher Rowland** 3:00:12

Yeah. No, thanks, Ryan. That's understood. And we'll we'll work to clarify those. Those those numbers and the and the references that support those.

The second point I'd like to just capture is the.

In reference to the IMC corridor and the analysis that supports that.

And you know, with a view to our understanding of the 62% and your understanding of the 48, seven percent and and and all associated assumptions around that operational or otherwise.

I think it would be a helpful exercise for us to to pursue that and and get to a closer understanding.

As well. So that's the sort of second aviation.

And operational action, I would say.

DU **Denis Ustich** 3:01:01

Yeah. Adjust maybe with the caveat recognising that that this applicable under the current regulations.

CR **Christopher Rowland** 3:01:10

Yeah, understood. Understood.

And.

I think regarding the safety conversation earlier in the meeting.

I don't recall that we had any explicit actions at this stage.

[Transcript part 2]

CR Christopher Rowland 0:05

Please correct me if I'm wrong, but I believe that.

We we've, we've, we've captured that that discussion let's say that will be noted here in the Minutes of this meeting.

And I think both sides will reflect on that and review to come back in in the next the next submissions.

I think what we do want to do is to capture.

But diary, slaughter date and time for decommissioning and walking at 0 follow up discussion.

That was the anticipated next step for us was to to bring the respective experts on that topic together.

And.

You know, walk through our positions on on that one. So I would like to to seek a time that we could, we could do that that meeting.

DU Denis Ustich 1:04

I think there was also a discussion around but but but the but but but potentially looking into the operational impact as well from the asset perspective, Susan.

SG Susan Gair 1:06

I don't think that's fine. I think I'm sorry.

OG Oliver Gardner 1:12

Yes, Dave and Andy, yeah, that was the other one. Yeah. Yeah.

SG Susan Gair 1:18

No, that's fine. I'm just going to answer there on the decomm, I'm looking for dates, Oliver, but right now it's it's it's been really difficult. So it's looking like be the earliest first week of March, but that's not confirmed yet.

OG Oliver Gardner 1:30

OK. Thank you.

SG Susan Gair 1:41

I'm gonna see the earliest. That's because I was looking for a slot in their dates for something else in that week. So I'm just want to. I'm just managing expectations, so you know about when that's coming. If it comes soon, it's the middle of the March that that's all I can do. But I just want to manage expectations there rather than come at you with an obscure date next month.

OG **Oliver Gardner** 1:44

Yeah.

Like.

Yeah, I mean, I guess on that I mean for both of those, you know we're we feel that you know it should be quite easy for, for for us to agree protection provisions for, for decommissioning and and MNZ or not relatively easy compared to some of the others. And so you know if if you're able to share your your draughts of of the project provisions for those you know.

Two interactions then. Then you know perhaps that I think it would still be a benefit to have a meeting, but it means that, you know, it's less urgent because obviously at the moment, as you know, as you're aware for, for for the MNZ.

Have anything provisions in because we just simply don't understand what it is you're asking and and you know, as as in that instance, you're the agent of change. You know, it's really for you to work around us, but obviously we're we're willing to be a good neighbour to, to try and put things in place to to support that project where we can. But yeah, we just don't. We haven't had that information. So if you could share those protective provisions then, then that would at least for the MNZ piece would would, would.

Mean that we don't have to have that meeting quite so urgently.

SG **Susan Gair** 2:57

We can work that into the protective provision conversation at the right time.

OG **Oliver Gardner** 3:00

Yeah.

And and on that. Is there any update on on on on what you're thinking about sharing those, obviously what we've we've we've said in in the submission that we're pre submitting later today, obviously that we haven't had any yet that we're still working on them. So if you're happy, you know if you're not going to share anything today,

then if you're happy that we just make that point again to say that you know we are still engaging on it.

RM **Rae-Anne Marr** 3:22

I mean, when we discussed last week, the view was that you wouldn't appreciate a draught mark up the day of submission. So I think you know you've not had them yet. So we've worked on that basis and I'm sure you can appreciate you know there's been conversations around elements of the PPS. You know some of the marine bits, the designation of owner, the types of things that we discussed in the at the hearings. But given that you know we're we're there's we're still pulls apart on some of the material asks you know.

OG **Oliver Gardner** 3:29

Yeah.

OK. Yeah.

Hmm.

RM **Rae-Anne Marr** 3:51

The the content will be as good as the technical discussion, so you know it. It's unfortunate. You know, we're just in a place of the the protective provisions will need to come when? When the right time is. And when we understand what the asks are. So you know that's the update fit.

CR **Christopher Rowland** 4:06

I mean it. Yeah. I mean, it'd be really helpful if we could already get, you know, outlined provisions with square bracketed terms that we know what we are. You know, in terms of framework. And then both points to to, to clarify and get closer on, because I think there's, you know, there's both the points of difference, but there's also, you know, to understand.

Your position on.

All necessary elements, let's say.

RM **Rae-Anne Marr** 4:38

So I I suppose because our our submissions have been so fuel we've we've viewed it as we've kind of you know been able to communicate what our requirements are,

albeit not in the protective provision forum. So you know I I I think that the asks should come as no surprise in terms of what we're looking to paper. I know there's nuance in there in terms of legal drafting, but I suppose you know the the technical conversations have had to take priority there was you know.

Agreement at many stages, you know, between the hearings and now that.

Tagged provisions are only as good as the technical discussion, so I think we just need to work out what is in the camp of of there being alignment on and I think other than there being some marine elements which you know have been have been papered and consistent throughout our reps, there's not really much you knew that the protect provisions will will open up. So the ASK has been heard from the examining authority but we need to be in a place where we're able to actually have. A substantial a substantive conversation around the protective provisions and you have worked on the basis that you that you wouldn't have appreciated a markup today day of submission that's understood.

So we will pick up at the right point, but we've had to prioritise these conversations. What I think, which I think have gone some way in at least trying to kind of funnel the issues in the areas of misalignment.

Which have been helpful, but we'll we'll pick up on those. But you know, I think that we've, we've we've made the asks in in a different forum, albeit not through the vehicle of protective provisions yet.

CR **Christopher Rowland** 6:14

Yeah, no. Understood. Understood.

RM **Rae-Anne Marr** 6:16

And sorry, in the last point on that is I think you know given that the protective provisions came in and they were largely not in an alignment with the asks that we've made, there is a lot of work to do in the protective provisions. It's not just a, you know, a couple of changes. So I think we need to have a think through how piece meal we come back on the protective provisions, but the conversations in hand, you know, I just, I don't want you to think that it's the ask of the examine authority was was.

You know, heard loud and clear.

But the technical conversations have needed to take place.

CR Christopher Rowland 6:51

Yeah, yeah.

OK then.

I would suggest that we can conclude the call.

There. I do appreciate everybody's time and participation this morning and apologies also for running over time. We'll pull together a set of minutes of the meeting proposed and send those across and we'll also share the transcript and the and the recording.

I think the priority this afternoon would be to align on the the Minutes for the previous meeting on the 13th.

So if we could get support on that and I'll, I'll if you could share your your comments as previously discussed, I'll also re share an updated draught of that so.

RM Rae-Anne Marr 7:40

We could have minutes because I think we'd be comfortable with the extent of today's meeting being that we've met that these were the attendees and this was the topic at hand. So I think that, you know, minutes to follow would work for us.

Appreciate we've all got quite a lot to do in terms of today's deadline, so that, you know, would it be reasonable to expect minutes to be submitted when we've had the meeting and it's concluded in the afternoon, the day of? I don't think so. So yes, the. Priority for us would be to see some actual minutes from last week. That'd be really helpful so that we can hopefully submit, you know, a joint view of of last week's conversation. But if you could follow up with the transcript and the recording of this session.

At your earliest opportunity that would be useful.

CR Christopher Rowland 8:23

Yeah, absolutely. Of course.

OK.

And thank you very much and wish you a good afternoon.

OG Oliver Gardner 8:28

Kate.

SG **Susan Gair** 8:29

And thank you very much to everyone. That was really useful. Thank you. Bye.

RM **Rae-Anne Marr** 8:30

Thanks everyone. Thank you.

Thanks, bye.

● **Oliver Gardner** stopped transcription

APPENDIX D: ORS Safety Report



REVIEW OF IMPACTS FROM MORECAMBE OFFSHORE WINDFARM TO SPIRIT ENERGY

SPIRIT ENERGY
120.202_TN1-A02

Prepared By
Martyn Akers

Reviewed By
Dario Pozza

Approved By
Neill Renton

Date
11.03.2025

Rev.
A02

Description
Issued for Use

2025 ORS. All rights reserved. The information contained in this document is subject to the terms and conditions of the agreement or contract under which the document was supplied to the recipient's organization. None of the information contained in this document shall be disclosed outside the recipient's own organization without the prior written permission of ORS, unless the terms of such agreement or contract expressly allow.

TABLE OF CONTENTS

- REVISIONS..... 3
- ABBREVIATIONS 3
- REPORT AUTHORS..... 4
- 1 INTRODUCTION..... 5
 - 1.1 BACKGROUND 5
 - 1.2 SCOPE 5
 - 1.3 DOCUMENT STRUCTURE 5
- 2 REVIEW..... 7
 - 2.1 METHODOLOGY..... 7
 - 2.2 RESULTS 8
 - 2.3 REGULATORY COMPLIANCE 9
- 3 DISCUSSION..... 12
- 4 CONCLUSIONS..... 14
- 5 REFERENCES..... 15
- APPENDIX A - SUMMARY IMPACT TABLES

REVISIONS

Revision	Date	Description	Originator	Reviewer	Approver
A01	05.03.2025	Draft	MAK	LCF	NRE
A02	11.03.2025	Issued for Use	MAK	DP	NRE

ABBREVIATIONS

Abbreviation	Description
ALARP	As Low As Reasonably Practicable
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication
CPC	Central Processing Complex
DCO	Development Consent Order
HSE	Health and Safety Executive
MOWL	Morecambe Offshore Windfarm
nm	Nautical Mile
NUI	Normally Unmanned Installation
ORS	ORS Consulting (UK) Limited
PFEER	Offshore Installations (Prevention of Fire and Explosion, and Emergency Response) Regulations 1995
QRA	Quantified Risk Assessment
REWS	Radar Early Warning System
SaR	Search and Rescue
SC	Safety Case
SCR15	Offshore Installations (Offshore Safety Directive) (Safety Case etc.) Regulations 2015
SECE	Safety, Environmental Critical Element
TDP	Take-off Decision Point
UK	United Kingdom
VFR	Visual Flight Rules

REPORT AUTHORS

A brief profile of the authors of this report is provided below.

Martyn Akers

Martyn has twenty three years of experience as a Process Safety Leader in oil and gas. In his role as Technical Authority, he has visited 30 separate North Sea installations and 6 onshore terminals building a range of experience in Technical Safety engineering. Awarded the Neptune Energy International HSE Award for the SECE Barrier Improvement Project in 2022 which he scoped, developed and completed. He has provided technical safety support to late-life assets through to the commissioning of a new platform and was the workstream lead for an asset sale / transfer process. Martyn was the Technical Authority for ten UK offshore installations (various North Sea) and one UK onshore gas terminal (SaGE St Fergus). His onshore experience also extends to Process Safety Management of three onshore Oil Terminals (Nigg UK, Flotta UK and Sangachal Azerbaijan). Martyn has extensive experience of ensuring organisations meet their legislative requirements for safe operation and has had overall responsibility for completing multiple safety case submissions to the UK Regulator.

Dr Neill C. Renton

A Chartered Engineer and Fellow of the IChemE, Neill has over 30 years' experience in various industrial, research and consultancy roles. Currently Director and Country Manager of ORS Consulting (UK), providing risk advisory services to a broad range of industrial clients. Prior to founding ORS (UK), Neill was a member of the leadership team at Genesis from 2011-2017 and Technip's Global College of Experts, addressing group wide process and technical safety issues. Prior to joining Genesis, he was discipline head of Chemical Engineering at the University of Aberdeen and has an international research profile in the fields of safety, materials science, and advanced probabilistic methods with a PhD and MSc in Safety & Reliability. Established track record of providing technical leadership in both academic and industrial settings. Dr Renton is a Fellow of the Institution of Chemical Engineers, a member of the IChemE's Education & Accreditation Forum, and a member of the Heriot-Watt Chemical Engineering Industrial Advisory board. He is a recipient of the Royal Academy of Engineering Excellence in Teaching award.

Dr. Steve Howell

A Chartered Engineer with a wide range of experience in the energy, defense and built-environment sectors Steve has over 27 years' experience using computational fluid dynamics (CFD), both commercially available codes for industrial applications and the design and development of bespoke CFD codes. Steve has completed multiple projects in wind-farm modelling including the design of wind-farm arrays to optimize power generation through assessment of velocity deficit and turbulence. Steve has a PhD in CFD and is involved in a number of national organizations including NAFEMS.

1 INTRODUCTION

1.1 BACKGROUND

Morecambe Offshore Windfarm Ltd. (MOWL), a joint venture between Zero-E Offshore Wind S.L.U. (Spain) (a COBRA group company) and Flotation Energy Ltd., have presented a planning application to construct and operate a windfarm, known as the Morecambe Offshore Windfarm. The proposed development is in the English sector of the Irish Sea.

The northern extent of the proposed windfarm is 1.5 nautical miles (nm) from the Spirit Energy operated Morecambe Hub Central Processing Complex (CPC). Its eastern extent is 1.5 nautical miles from the Harbour Energy operated Calder installation, which is managed within the Spirit Energy Morecambe Hub Safety Case (SC) and dependent on intervention and control from Spirit Energy. The layout is provided over in Figure 1-1.

The DCO application for the MOWL project is currently being examined, with submissions made by Spirit Energy highlighting a number of impacts that the windfarm proposal will have on their facilities' operation. The MOWL stakeholders, in presenting its planning application, are impacting the operation of aircraft in Morecambe Bay and in turn the operation of the Spirit Energy Morecambe Hub.

In the initial and supplemental submissions, detailed positions have been presented from Spirit Energy as well as the MOWL's stakeholders. The topic of compliance with respect to the Morecambe Hub Safety Case and applicable legislation has not however been developed other than a coarse consideration from MOWL using a traditional offshore Quantified Risk Assessment (QRA), which argues that the changes in risk are not 'material' [1]. This is a limited approach that does not reflect the cumulative nature of the changes.

A wider review of the issues relating to regulatory compliance and the cumulative effect of wind farm location on the safe operation of the platforms is needed to give a full picture of the likely impact.

1.2 SCOPE

ORS have been tasked by Spirit Energy to review the effect of the proposed wind farm layout on safety on the CPC installations; the impact on the CPC safety case, legislative compliance, and requirements for future safety case submissions.

1.3 DOCUMENT STRUCTURE

This document is set out according to the following structure:

- Section 1 presents the **Introduction**;
- Section 2 details the **Review**, providing the methodology used and results of the assessment;
- Section 3 compiles the **Discussion** around the analysis undertaken as part of this study;
- Section 4 summarises the **Conclusions** to the study;
- Section 5 lists all applicable **References**.
- Appendix A is also included for additional information, referenced in the document.

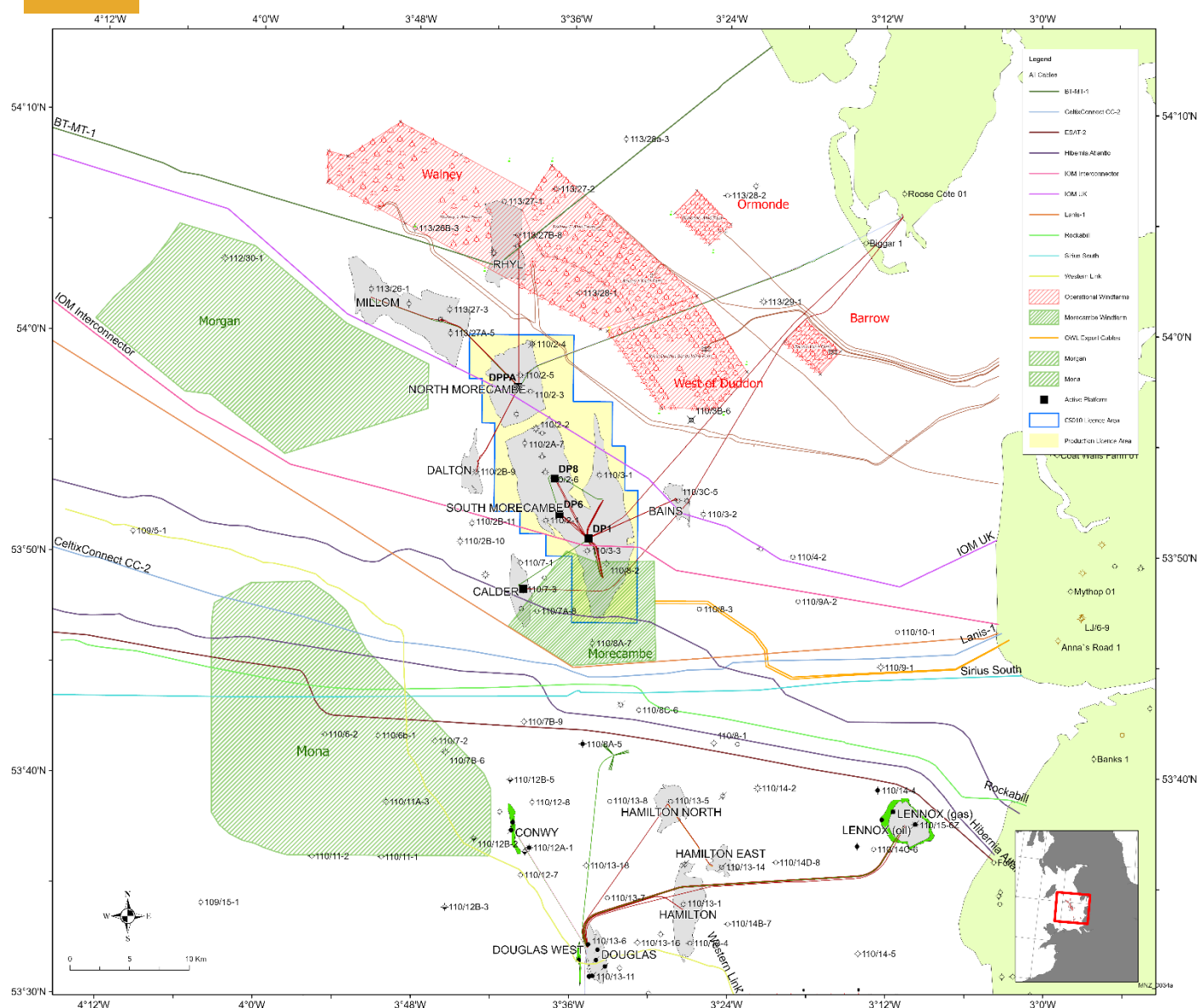


Figure 1-1: Morecambe Hub installations and current / proposed wind farms. MOWL Project labelled 'Morecambe'

2 REVIEW

2.1 METHODOLOGY

During the planning process for the MOWL project, a number of specific topics have been raised and reviewed by multiple parties. These topics include: buffer zone available for safe operation of helicopters to platforms, effect of flight frequencies on maintenance of platform safety & environmental critical elements, on evacuation facilities and overall risk level for Morecambe Hub. Spirit Energy, Morecambe Offshore Windfarm stakeholders and supporting contractors have progressed these topics and, while individually there are points of concern, it is worth considering the cumulative impact of the MOWL proposal against the existing Morecambe Hub assets.

Morecambe Hub is a development classed as an installation within Regulation 3 of the Offshore Installations and Pipelines Works (Management and Administration) Regulations 1995 [2]. The installation requires a Safety Case which must meet the requirements set out in the Offshore Installations (Offshore Safety Directive) (Safety Case etc.) Regulations 2015 (SCR15) [3].

The requirement for a Safety Case was introduced in law after the Piper Alpha disaster in 1988 following recommendations made in the public enquiry chaired by Lord Cullen. The intent of the Safety Case is to give confidence to operators, owners, workers and the Competent Authority (in this case Health and Safety Executive, HSE) that the Duty Holder (Spirit Energy) possesses the capability and means to effectively manage and control Major Accident Hazards with the potential to cause death or serious personal injury.

Each installation's Safety Case must comply with the requirements set out in SCR15 [3] and is intended to be a living document, where the description of the installation and how it operates must always remain correct throughout its operational life. Where this is no longer reflective of the true state of the installation, a 'Material Change' to the Safety Case must be submitted to the Regulator (HSE). A Material Change is likely to be one that changes the basis on which the original Safety Case was accepted, some examples of changes that would warrant revisions to be submitted are:

- Modifications or repairs to the structure or any plant and equipment where the changes have or may have a significant impact on safety;
- A number of small changes are planned which will cumulatively have a significant impact on safety;
- Introduction of new activities on the installation or in connection with it, including new kinds of combined operation;
- Introduction of new technology or technological approaches to controlling risks;
- Introduction of new well control measures or other arrangements arising from well notifications
- Change in operator or owner;
- Extension of use of the installation beyond its original design life; or
- Decommissioning a production installation and connected pipelines.

Regulation 24 of SCR15 [3] outlines the requirement for a Safety Case to be revised when appropriate and the Regulator will review each Material Change, to ensure that all hazards have been identified and are managed appropriately. Documentation provided by the MOWL 'Applicant' in support of a request for planning permission covering the proposal considers that the location of the proposed windfarm does not constitute a Material Change [1]. This assertion is due to the impact of one single risk metric, as calculated on behalf of MOWL, being considered as small and not significant. A number of alternative, subjective judgements were made regarding differing impacts to the Safety Case without a full picture of how the assets are operated.

The MOWL supporting documentation [1] does state that "*the Safety Case will need to be updated*", although this is incorrectly considered to be required only to document "*the slight change in operations*". The supporting documentation has chosen to identify single specific Material Change justifications that would be typical if Spirit Energy were themselves undertaking a large construction project on their own asset. Reference to separate Industry Guidance [4] on what constitutes a Material Change is made; the vendor employed in the MOWL submission was a party to the workgroup that compiled this guidance. The text states in Section 1.3.1 *Cumulative Changes*:

"It should be appreciated that whilst an individual change may not be material, the overall cumulative impact of multiple individual changes could be material. In this case, the same process is required as for a single change that is material, but it is especially important that the timing of this is appropriate to ensure that the Material Change is not made before the Safety Case is accepted by the regulator."

Based on guidance from the Regulator (HSE) [5], the individual safety implications imposed on the Morecambe Hub asset operation could result in the imposed changes being “*likely to change the basis on which the original safety case was accepted*”.

In this report, a cumulative impact of the changes to the way the Morecambe Hub is operated by Spirit Energy is evaluated and assessed by ORS, to confirm whether it constitutes a need for a Material Change submission.

The assessment has been carried out by reviewing the supporting documents from Spirit Energy as well as MOWL’s supporting documents, to identify any issues that have an impact upon the safety of Morecambe Hub installations. These issues have been reviewed to identify whether they impact the platforms’ performance which would need to be reflected in the Morecambe Hub Safety Case and whether they impact any existing legal expectations. Further any resolution which has currently been achieved at the ‘Deadline 4 submission’ stage to address the identified issue is evaluated.

2.2 RESULTS

A total of 9 individual issues were identified during the review, with all of them affecting regulatory compliance and resulting in an increase in risk with impacts on the case for safety documented in the Morecambe Hub Safety Case.

A series of tables are presented in Appendix A evaluating the impact of each individual issue. A summary of the results is presented in Table 2-1 below which indicates, for each issue, the impact on the Morecambe Hub Safety Case, and wider regulatory compliance. Red highlights any negative impacts or outcomes. Some parameters are highlighted in grey as they are not applicable.

Table 2-1: Summary of MOWL impacts upon Affected Assets

Issue	Topic	Impact of Proposed MOWL Development		
		Safety Case Affected	Impact on Safety	Regulatory Compliance Issue
1	Aviation - Buffer Zone	Yes	Negative	Yes
2	Aviation – Operations	Yes	Negative	Yes
3	Aviation – Turbine Wake	Yes	Negative	Yes
4	Emergency Evacuation-by Helicopter	Yes	Negative	Yes
5	Emergency Evacuation by Lifeboat	Yes	Negative	Yes
6	Marine Traffic	Yes	Negative	Yes
7	Execution of Maintenance Plan	Yes	Negative	Yes
8	Safety Case - Tolerability of risk	Yes	Negative	Yes
9	Safety Case	Yes	Not Applicable	Yes

Each of these issues individually increases the likelihood of a Major Accident on the Morecambe Hub, and the cumulative effect is significant. It is worth restating some of the key points from the analysis presented in Appendix A:

- The current MOWL proposal means it will no longer be possible to provide emergency helicopter evacuation by commercial helicopters in low visibility conditions, introducing a delay in accessing medical treatment for injured / ill persons while arrival of Search & Rescue (SaR) is awaited. The availability of SaR is dependent on a number of factors and delays could be significant.
- Similarly if a loss of containment occurs, like that of Elgin Franklin in 2012, the MOWL proposal will result in a significant delay to emergency evacuation while arrival of SaR is awaited; such delays will increase exposure to escalation (fire & explosion) and the frequency of lifeboat use.

- Helicopters encountering an engine failure on rotation shortly after take-off from a CPC Helideck need 3.76nm to complete the maneuvers needed for safe recovery. The proposed distance to the MOWL towers is only 1.5 nm.
- The wind turbine array will create a region of turbulence and velocity deficit downwind of the windfarm. This effect will result in chaotic changes in magnitude and direction of the wind speed components, with the pilot having to respond to these on approach and take-off. Pilot workload will increase significantly and aircraft handling around the affected platforms will become more challenging. The risk associated with Helicopter transport will increase as a result.
- Maintenance and Inspection of the equipment on the normally unmanned installations will be delayed and a backlog develop. Inspection delays allow deterioration to continue and increase the risk associated with unrevealed failures. Each platform has a number of Safety and Environmental Critical Elements (SECEs) designed to either prevent a major accident event or reduce the impact if one occurs. The condition of these SECEs will degrade over time as maintenance and inspection is delayed.
- The cumulative effect of all of the issues represents a significant change in how the assets are currently operated. As a result of this increase in risk, there will be a need for a Material Change submission to the Safety Case as per the Guidance provided by the HSE [4].
- All impacts on the Morecambe Hub Safety Case and other regulatory compliance issues must be addressed, including the need to reduce risk to a level considered ALARP, to remain compliant with current legislation.

The submission process for a Material Change to an Installation Safety Case requires the documentation to be updated, using information supported by the Duty Holder so that the Regulator can assess all changes. The current MOWL proposal and associated impacts are determined to require a Material Change for Morecambe Hub, as well as subsequent review and justification from Spirit Energy for acceptance of any changes to their operation which are not deemed tolerable.

Should the Regulator not accept the case for safety made by Spirit Energy, the revised Safety Case will not be accepted. This would place Spirit Energy in a position where they cannot continue to operate without placing personnel at risk and will force the installation to shut down, followed by a significant review of affected operations and make changes or be decommissioned.

2.3 REGULATORY COMPLIANCE

The proposed development will place Spirit Energy at risk of Regulatory enforcement action for breaches of statutory regulations in various pieces of legislation. These are highlighted in the table below. The Regulators (CAA & HSE) are duty bound to intervene where they believe that non-compliance is occurring and these points demonstrate that Regulatory action can be expected relating to safe operation of the affected assets under the current MOWL proposal.

Table 2-1: Summary of compliance concerns.

Regulation	Compliance Concern
Air Navigation Order 2016 This order requires a minimum buffer zone of 3 nm	The proposed proximity of the windfarm therefore has the very real potential to force Spirit Energy into a position of legal non-compliance or acceptance of significant restrictions on helicopter access.

Regulation	Compliance Concern
<p>PFEER Reg.5 Assessment This regulation requires Spirit Energy to assess the fire and explosion, and other major accident events which may require evacuation, and to identify appropriate arrangements for dealing with them</p> <p>SCR15 Reg. 16 Management and control of major accident hazards This regulation requires Spirit Energy to demonstrate that <i>‘(1)(d) all major accident risks have been evaluated, their likelihood and consequences assessed... and that suitable measures, including the selection and deployment of associated safety and environmental-critical elements have been, or will be, taken to control those risks to ensure that the relevant statutory provisions will be complied with’</i></p>	<p>Flight restrictions imposed by the proposed development will result in several changes to the way that Spirit Energy will be required to operate the asset and will require a substantial revision of the PFEER Reg.5 assessment to re-evaluate major accident risks how these risks are to be managed to reduce them to ALARP.</p> <p>Cumulatively these result in a requirement to submit a Safety Case Material Change, putting Spirit in the untenable position of trying to build a case for safety and ALARP demonstration that they do not believe to be credible and cannot support. This will make it extremely difficult, if not impossible, to demonstrate compliance with SCR15 and PFEER.</p>
<p>PFEER Reg.10 Detection of incidents This regulation requires Spirit Energy to take appropriate measures to detect emergencies for the full range of reasonably foreseeable events which require emergency response, and that these systems should provide sufficient levels of availability and reliability to meet the demands placed on them.</p>	<p>The proposed development has the potential to defeat the ability of a Radar Early Warning System (REWS) to detect and track targets within the affected area, thereby increasing the likelihood of ship collision and seriously compromising Spirit’s ability to demonstrate compliance with PFEER Reg.10 for ship collision threats.</p>
<p>PFEER Reg.15 Arrangements for evacuation This regulation requires Spirit Energy <i>‘to ensure, so far as is reasonably practicable, the safe evacuation of all persons’</i>, and to <i>‘select means of evacuation on the basis of their contribution to reducing the risks of those who might have to use them to as low as reasonably practicable’</i></p>	<p>Flight restrictions imposed by the proposed development will significantly reduce Spirit’s access to their preferred means of evacuation for medical emergencies and in the event of major emergencies, increasing the risk to personnel during the evacuation and making it impossible for Spirit to demonstrate compliance with PFEER Reg.15</p>
<p>PFEER Reg.19 Suitability and condition of plant This regulation requires Spirit Energy to <i>‘ensure that all plant on the installation provided in compliance with these Regulations... (b) is maintained in an efficient state, in efficient working order and in good Repair’</i></p> <p>SCR Reg. 9 Establishment of verification scheme This regulation requires Spirit to ensure that safety and environmental critical elements <i>‘remain in good repair and condition’</i></p>	<p>Flight restrictions imposed by the proposed development compromise Spirit’s ability to execute SECE maintenance, exposing personnel on the affected assets to increased safety risk, and the organisation to risk of regulatory enforcement action for failure to keep SECEs in good repair and condition, affecting:</p> <ul style="list-style-type: none"> - Reg.9 Prevention of fire and explosion - Reg.10 Detection of incidents - Reg.11 Communication - Reg.12 Control of emergencies - Reg.13 Mitigation of fire and explosion - Reg.14 Muster areas etc - Reg.15 Arrangements for evacuation - Reg.16 Means of escape - Reg.18 Suitability of personal protective equipment for use in an emergency - Reg.20 Life-saving appliances

Regulation	Compliance Concern
<p>SCR15 Reg.24 Revision of safety case This regulation requires Spirit to revise their safety case and submit to the competent authority for acceptance where material changes are identified including any that:</p> <ul style="list-style-type: none"> • Change the basis on which the original Safety Case was accepted, including the basis on which risk control decisions are made or which necessitate a review of the adequacy of major hazard control measures; this includes both physical modifications and operational management changes of sufficient significance • Introduce multiple cumulative impacts that have the potential to affect the major accident risks or their controls, either directly or indirectly 	<p>Flight restrictions imposed by the proposed development will result in several changes to the way that Spirit Energy will be required to operate the asset and will require a substantial re-evaluation of major accident risk and how these risks are to be managed to reduce them to ALARP.</p> <p>Cumulatively these result in a requirement to submit a Safety Case Material Change, putting Spirit in the position of trying to build a case for safety and ALARP demonstration that does not appear to be credible.</p>
<p>SCR15 Reg.28 Duty to conform with safety case and notifications of operation This regulation requires Spirit Energy to <i>'ensure that the procedures and arrangements described in the current safety case which may affect the health and safety of persons or the environment are followed'</i></p>	<p>Flight restrictions imposed by the proposed development will result in several changes to the way that Spirit Energy will be required to operate the asset and will require a substantial re-evaluation of the arrangements in place to manage risk. These changes must be accurately described in the safety case before taking effect putting Spirit in the position of operating in a way that does not conform to their safety case, or trying to build a case for safety and ALARP demonstration that does not appear to be credible (as described for SCR15 Reg.24)</p>
<p>SCR15 Regulation 29 Duty to control risk This regulation requires Spirit Energy to <i>'take suitable measures to ensure that the risk is reduced as low as is reasonably practicable'</i> where an activity <i>'significantly increases the risk of a major accident'</i></p>	<p>Flight restrictions imposed by the proposed development will result in significant challenges to safe helicopter operations for the affected assets, materially increasing the potential for a helicopter crash event. This would put Spirit Energy in the position of trying to build a case for safety and ALARP demonstration that does not appear to be credible.</p>

3 DISCUSSION

Following the Piper Alpha disaster in 1988, the United Kingdom established the Safety Case regime which requires each operator of an offshore installation to establish a Safety Case. This approach is considered to be best practice, similar legislation has been established in many other parts of the world including throughout Europe and Australia. The approach is one of 'goal setting', which means that it is up to each operator to determine that their operations have reduced risk to As Low As Reasonably Practicable. The ALARP approach places the responsibility for ensuring safety upon an operator and does not require acts of parliament to provide a prescriptive definition.

A similar approach has been established with the aviation community. The framework of legislation is outlined within legislation such as the Air Navigation Order (2016) [6] where much of the detail of how aviation operates is outlined by the Civil Aviation Authority (CAA) in operational documents.

Benefits of the UK legislative regime are that it drives continual improvement and that the management of topics such as the safety of offshore installations and aircraft operation can be managed and regulated without legislation returning through parliament on a regular basis.

The MOWL stakeholders, in presenting its planning application, are impacting the operation of aircraft in Morecambe Bay and in turn the operation of the Spirit Energy Morecambe Hub. If accepted, Spirit Energy will have an inadequate 'buffer zone' between the proposed windfarm and the Morecambe Hub. Both parties agree that the impact of this buffer zone places a restriction on aircraft operations. Both parties also agree that there is an ongoing change, to be implemented in 2025, which would see a buffer zone of at least 3 nautical miles. By continuing with this submission, neither Spirit Energy nor its appointed aviation contractor will be able to meet this requirement.

Spirit Energy have made a case for the imposition of a buffer zone which is of a different extent based upon independent advice from aviation specialists. A statement from MOWL that an exception process is available as part of the regulations neither provides confirmation that an exception request will be approved nor that it will provide a safe mode of operation.

The implications of the development, should it place a restriction on flight operations, are varied and summarized within the tables provided in Appendix A of this document. Each impact requires careful consideration and provides a negative impact on the Spirit Energy ability to operate safely. MOWL has asserted that the difference in statistical risk imposed on the Morecambe Hub by the windfarm is low and not material, this is the basis for stating that the Safety Case does not require resubmission to the Regulator as a Material Change. The basis for this assertion is that a statistical risk assessment has been made and that the difference is small. Statistical assessments such as this are prone to errors in content and are dependent on assumptions. Submissions to the planning process from Spirit Energy have highlighted discussions on the credibility of the assessment in question.

The assertion by MOWL and its contractor that the development does not impact the Safety Case materially is incorrect. SCR15 [3] provide a requirement for operators to resubmit the Safety Case to the Regulator for review should there be multiple cumulative impacts that have the potential to affect the major accident risks or their controls, either directly or indirectly.

A Material Change is likely to be one that changes the basis on which the original Safety Case was accepted. This would involve changes to the basis on which risk control decisions are made or which necessitate a review of the adequacy of major hazard control measures. It includes both physical modifications and operational management changes of sufficient significance [2]. The MOWL development requires many management changes by Spirit Energy.

In recognition of the evolving situation with respect to aircraft operation in the vicinity of windfarms the CAA has stated:

"Wind energy developments (including anemometer masts) within a 9 nm radius of an offshore helicopter installation could introduce obstructions that would have an impact on the ability to safely conduct essential instrument flight procedures to such facilities in low visibility conditions. Consequently, any such restrictions have the potential to affect not only normal helicopter operations but could also threaten the integrity of offshore installation Safety Cases where emergency procedures are predicated on the use of helicopters to evacuate the installation" [7]."

With respect to the proposed MOWL development in the vicinity of the Spirit Energy operated Morecambe Hub, both parties have agreed that the development will have an impact on Spirit Energy operations. Both parties have presented that there are changes to operation that require update of the Morecambe Hub Safety Case. The MOWL position that the Safety Case does not require to be resubmitted is in direct contradiction to guidance given by the regulators of both aviation (CAA) and offshore installations (HSE).

The assessment completed in this report shows that a Material Change will be required for the increase in risk that the MOWL project will introduce to CPC operations. The outcome is unknown, and would see Spirit Energy submit a Safety Case that they themselves don't consider credible and don't support.

4 CONCLUSIONS

This report has reviewed the status of the planning application relating to the construction of the proposed Morecambe Offshore Windfarm. It is concluded that there are 9 issues arising from the MOWL proposal that have a cumulative impact upon the operation of the Morecambe Hub natural gas production complex in Morecambe Bay.

The impacts are considered to be material, both in relation to the continued operation of helicopters to support safe operation of the Morecambe Hub and in relation to Spirit Energy demonstrating they can operate the complex safely.

Should the proposal proceed, it places the responsibility on Spirit Energy to submit requests for variations in operations to the CAA with no guarantee of acceptance. Spirit Energy will also have to resubmit the Safety Case to the Regulator to defend a situation that negatively impacts the safety of their operation. This will result in a position which is not considered to be ALARP, any attempt to define this retrospectively will be considered as a reverse ALARP argument and should be discounted by the Regulator. Spirit Energy would be forced to defend this position against regulatory scrutiny.

Continuation of the proposals as presented places Spirit Energy in a position where they must defend their degraded capabilities to operate safely and could result in Morecambe Hub being shut down and decommissioned at short notice. Such an imposition should not be a credible outcome of the planning process.

5 REFERENCES

- [1] DNV Services UK Limited, "Effect of Proposed Morecambe Offshore Windfarm on Offshore Oil and Gas Operations," 2025.
- [2] Health and Safety Executive, "A guide to the Offshore Installations and Pipelines Works (Management and Administration) Regulations 1995 (Second edition)," 1995.
- [3] Health and Safety Executive, "The Offshore Installations (Offshore Safety Directive) (Safety Case etc) Regulations 2015 - Guidance on Regulations," 2015.
- [4] OGUK, "Guidance on whether a change constitutes a material change to a safety case," 2021.
- [5] Health and Safety Executive, "Material change to a safety case - Offshore Information Sheet No. 3/2011," 2011.
- [6] "The Air Navigation Order 2016 (SI 2016/765)," [Online]. Available <https://www.legislation.gov.uk/uksi/2016/765/contents/made>.
- [7] UK Civil Aviation Authority, "CAP764 - CAA Policy and Guidelines on Wind Turbines," 2016.
- [8] Netherland Aerospace Centre, Determining a safe-distance guideline for helicopters near a wind turbine and wind park, NLR-TP-2019-083, February 2019.



APPENDIX A – SUMMARY IMPACT TABLES

REVIEW OF IMPACTS FROM MORECAMBE OFFSHORE WINDFARM TO
SPIRIT ENERGY

120.202_TN1-A02



Issue - 1	Safety Case impact	Impact on performance	Legal / Regulatory compliance issue?
Aviation - Buffer Zone	Yes	Negative	Yes Air Navigation Order 2016
Summary			
MOWL have proposed a 1.5 nautical mile buffer zone between the nearest helidecks on Calder and CPC and the windfarm boundary. They contend that the impact on the affected assets is minimal based on their assumption that Spirit will be able to secure an exception to CAA aviation rules.			
Assessment			
<p>Proposal means that Spirit Energy's aviation contractor must use Visual Flight Rules (VFR) and would be unable to operate on instruments. Spirit would therefore be unable to access the affected assets by helicopter at night or in weather conditions that reduce visibility. This introduces multiple impacts as defined within the individual issues tables in this Appendix.</p> <p>Legal non-compliance with CAA operational changes that would require a formal operational exception to be raised to allow continued operation. The MOWL position is dependent on an exception being raised; this assumption is fundamentally flawed given that no exception has ever previously been approved on this basis. The proposed proximity of the windfarm therefore has the very real potential to force Spirit into a position of legal non-compliance or acceptance of significant restrictions on helicopter access resulting in no access outside of daylight hours or low visibility weather conditions.</p> <p>Independent aviation advice has identified that a minimum buffer zone of 3.76nm is required to maintain safe helicopter operations. The Safety Case for the Affected Assets needs to accurately reflect Helicopter Operations and such a significant change needs to be recorded and would likely be material (see Issue – 9: Safety Case), and be subject to challenge by the regulator. CAP 764 acknowledges that windfarm developments could require Safety Cases to be resubmitted.</p>			
Summary of Impact on Affected Assets			
<ol style="list-style-type: none"> 1. Renders Spirit Energy unable to access the affected assets by helicopter at night or in weather conditions that reduce visibility (see Issue 2) 2. Exposes Spirit to increased risk of regulatory enforcement action 3. Will require a Material Change submission of the Safety Case to the Regulator 			

Issue - 2	Safety Case impact	Impact on performance	Legal / Regulatory compliance issue?
Aviation - Operations	Yes	Negative	Yes
			PFEER Regulation 15
Summary			
MOWL have proposed a 1.5 nautical mile buffer zone between the nearest helidecks on Calder and CPC-and the windfarm boundary. They contend that the impact on the affected assets is minimal based on their assumption that Spirit will be able to secure an exception to CAA aviation rules.			
Assessment			
<p>Proposal means that Spirit Energy's aviation contractor must use Visual Flight Rules (VFR) and would be unable to operate on instruments. Spirit would therefore be unable to access the affected assets by helicopter at night or in weather conditions that reduce visibility, introducing multiple impacts on aviation scheduling and availability, and risks to personnel:</p> <ul style="list-style-type: none"> • Increase in the number of required flights, number of aborted flights and resultant issues with maintenance scheduling. As described in Issue 7 this adversely impacts Spirit's ability to maintain plant in an efficient state, in efficient working order and in good repair, which in turn increases the risks to personnel on the affected assets. • As described in Issue 8, the increase in the number of required flights will significantly increase the transportation risk to the NUI interventions team by requiring more interventions to execute the maintenance plan. • Decrease in ability to evacuate by helicopter in the event of a major accident or medical emergency. As described in Issue 4 and Issue 5 limiting Spirit's access to their preferred means of evacuation for medical emergencies and in event of major emergencies, increases the risk to personnel during the evacuation <p>CAA practices expected to be established in 2025 stating a requirement for a minimum exclusion zone of 3 nautical miles within which only daytime flights under VFR conditions will be allowed. This has been agreed within industry working groups with helicopter operators, including the Spirit Energy aviation contractor.</p> <p>The MOWL position is based on Spirit applying for an exception to these rules and the assumption of this being accepted. Review of CAP 1721 - Alternative means of compliance confirms no precedent for this has been set in the UK and without such a precedent, it is considered unlikely that an application by Spirit would be accepted.</p>			
Summary of Impact on Affected Assets			
<ol style="list-style-type: none"> 1. Requires Spirit Energy to operate with a 1.5nm buffer zone when CAA practices and agreed industry practice will require a 3nm buffer zone. 2. Increase the risk associated with helicopter operations and limit pilots ability to respond to helicopter equipment failures e.g. engine rotor failure at TDP. 3. Increase the number of helicopter flights due to aborts, cancellations, and increased constraints, 			

Issue - 3	Safety Case Impact	Impact on performance	Legal / Regulatory compliance issue?
Aviation – Turbine Wake	Yes	Negative	Yes
			CAP 437
Summary			
The installation of a wind turbine array will result in turbulent air downwind of the turbines which has a potential to impact ongoing flight operations.			
Assessment			
<p>The presence of a wind turbine array at sea disrupts the air downwind of the array creating a ‘wake’. This wake creates a velocity deficit, with lower wind conditions, and also turbulence which is chaotic in nature with horizontal and vertical in wind speed and direction. This has been studied by a number of authors, including [8].</p> <p>Documentation provided in CAP437 acknowledges that disruption to air continues for some distance downwind of turbines. The CAA has received informal reports that wind turbine effects cause turbulence but the extent of this is not clear and acknowledges that the topic requires further study as a hazard remains. Work has been completed in the Netherlands showing that a 6 knot wind deficit is still present at 6 x Rotor Diameters downwind and that turbulence intensity may breach Cap 437 EDSU w’ limit of 1.75 ms⁻¹ at the helideck at higher wind speeds of 20 ms⁻¹. The practical impact of both of these is the increased stress this will create on pilots as the aircraft become harder to handle with randomly fluctuating power requirements.</p> <p>The Netherlands study [8] notes that <i>‘it is expected that the chaotic changes in magnitude and direction of wind speed components in the flow, has significant effects on the helicopter handling and workload of the pilot’</i> and also that <i>‘the reduction in wind speed will increase the required power of the helicopter, especially in the low speed flight envelope of the helicopter (i.e. landing and take-off). This increased power requirement will have to be met by the engine and gearbox performance characteristics and will also affect pilot workload’</i></p> <p>While the helideck pilots will no doubt seek to avoid the airspace between the platform and the windfarm, it is inevitable that operations will see some flights forced to use this region. The effect on pilot workload is estimated in [8] as significant leading to an increase in human error and a higher risk to all on-board. This is not reflected in existing estimates of helicopter failure including those used in the DNV assessment [1].</p>			
Summary of Impact on Affected Assets			
<div>1. The wind turbine array will create a region of turbulence and velocity deficit downwind of the windfarm.</div> <div>2. This effect will result in chaotic changes in magnitude and direction of the wind speed components, with the pilot having to respond to these on approach and take-off.</div> <div>3. Pilot workload will increase significantly and aircraft handling around the affected platforms will become more challenging. The risk associated with Helicopter transport will increase as a result.</div>			

Issue - 4	Safety Case Impact	Impact on performance	Legal / Regulatory compliance issue?
Emergency Evacuation by Helicopter	Yes	Negative	Yes PFEER Regulation 5, 15, 17
Summary			
<p>MOWL have proposed a 1.5 nautical mile buffer zone between the nearest helidecks on Calder and CPC and the windfarm boundary. They contend that the impact on the affected assets is minimal based on their assessment [1] that helicopters are an ineffective means of evacuation in an emergency due to the effects of the event.</p>			
Assessment			
<p>PFEER Reg. 5 requires Spirit to assess the fire and explosion, and other major accident events which may require evacuation, and to identify appropriate arrangements for dealing with them. The Morecambe Hub Safety Case contains the PFEER Reg. 5 assessment for the affected assets and contains details of how Spirit Energy ensure compliance with the PFEER regulations for means of evacuation (PFEER Reg. 15), and how these means of evacuation are protected from the effects of the major accident event through the measures specified under PFEER Reg. 13 and 14.</p> <p>The impact of the proposed development on the availability of helicopter evacuation to support response to major emergencies has been qualitatively assessed for hydrocarbon fire / explosion, and ship collision events:</p> <ul style="list-style-type: none"> Hydrocarbon Fire / Explosion <p>CPC is currently exposed to fire and explosion major accident hazards that could cause significant harm from an initial event, and with the potential to escalate to much larger events with more widescale impacts and higher potential for catastrophic effects. To understand the impact of the proposed development it is worth reviewing the specific measures under PFEER Reg. 13 and 14 in place to protect the means of evacuation.</p> <p>CPC has been designed across three separate bridge-linked jackets:</p> <ul style="list-style-type: none"> AP1 containing the Temporary Refuge where personnel muster in the event of an emergency, and the primary helideck CPP containing the main hydrocarbon processing plant and import / export pipeline connections DP1 containing hydrocarbon production wells and alternative muster and evacuation facilities, including a secondary helideck <p>This platform design serves to protect the helideck from the effects of fire / explosion by placing it some distance from the process plant, making it much less likely to become impaired. The PFEER Reg. 5 assessment has demonstrated that there are very few initial events that could very quickly impair the TR and means of evacuation from AP1.</p> <p>The orientation of the platform ensures that prevailing wind direction is from AP1 to DP1. This significantly reduces the likelihood that the TR or AP1 helideck will be impaired by a fire event on CPP. It is possible for this helideck to be impaired and unable to support helicopter evacuation e.g., in the event of an unfavourable wind direction, but in this scenario a controlled helicopter evacuation may still be possible from the secondary helideck on DP1.</p> <p>Emergency response plans are in place and based on a precautionary approach that is also a key feature of industry training on the Management of Major Emergencies (MOME) – an on-scene commander would not wait <i>‘until the last moment’</i> to initiate evacuation procedures. The on-scene commander will base their decision to evacuate on their understanding of the event, its escalation potential and their MOME training.</p>			

It is worth noting that empirical evidence from many examples across industry support the conclusion that helicopter evacuation provides an effective emergency response to fire and explosion events, particularly from assets designed in a similar manner to CPC where process hazards are remote from the TR and helideck.

- Ship Collision

The affected assets are currently exposed to ship collision hazards that could cause significant structural damage with major accident potential. The affected assets are served by ship collision avoidance measures including a Radar Early Warning System (REWS), an Emergency Response and Rescue Vessel (ERRV), and supporting management systems arrangements to monitor nearby shipping traffic, detect a potential ship collision threat and deploy effective emergency response, including evacuation by helicopter.

To ensure a good prospect of controlled evacuation from the affected assets a common industry approach has been adopted whereby a detailed emergency response plan is in place documenting alert and action levels of emergency response activity in the event of a ship collision threat being detected. Early recognition of the threat through the systems in place and appropriate timely emergency response action are key features of successful controlled evacuation. It is worth noting that empirical evidence from many examples across industry support the conclusion that helicopter evacuation provides effective emergency response to detected ship collision threats.

The issues that the proposed development would cause to Spirit's ship collision avoidance measures are discussed in Issue 6 – Marine Traffic.

Spirit has at its disposal multiple means of evacuation, including 3 commercial helicopters at Blackpool that can currently be mobilized in response to a major event as per the current emergency response plan. Spirit's commercial aviation provider NHV has confirmed that they will attend to support evacuation of personnel as long as a fire event was contained to CPP and there was no impairment of the helideck.

Flight restrictions imposed by the proposed development will seriously curtail the ability of Spirit Energy to access helicopters as their preferred means of evacuation, significantly increasing their reliance on Coastguard Search and Rescue (SaR) helicopters and the alternative means of evacuation on board by lifeboat. The SaR service is based in Wales and mobilisation to CPC would take in excess of 1 hour, but in any case, may not be immediately available if they have already been called out to an unrelated rescue. Lifeboats provide a more immediately available option but as discussed in Issue 5, are much higher risk than evacuation by helicopter.

Summary of Impact on Affected Assets

Overall, this assessment concludes that helicopters currently provide a viable and credible means of evacuation from CPC in the event of a major emergency involving the majority of major accident scenarios associated with fire / explosion or ship collision. It is further concluded that the proposed development will significantly compromise this evacuation capability for the affected assets.

Issue - 5	Safety Case Impact	Impact on performance	Legal / Regulatory compliance issue?
Emergency Evacuation by Lifeboat	Yes	Negative	Yes PFEER Regulation 8, 16, 17, 18, 20
Summary			
<p>MOWL have proposed a 1.5 nautical mile buffer zone between the nearest helidecks on Calder and CPC and the windfarm boundary. They contend that the impact on the affected assets is minimal based on their assessment [1] that helicopters are an ineffective means of evacuation in an emergency due to the effects of the event.</p>			
Assessment			
<p>The requirements for primary, secondary and tertiary means of escape and evacuation are set out in The Prevention of Fire and Explosion, and Emergency Response Regulations 1995, Regulations 15, 16, 17, 18 and 20. On the CPC facilities, evacuation via Totally Enclosed Motor Propelled Survival Craft (TEMPSC) or 'lifeboats' is available but is the alternative means of evacuation.</p> <p>Loading individuals onto a lifeboat, lowering the craft into the Sea, maneuvering the craft away from the platform and then recovering everyone to a place of safety is a significant undertaking with has associated risks of its own. It is not a common event, but when it has happened, there have been instances of injuries and fatalities to personnel. The complexity of a lifeboat evacuation and its inherent risks is the reason why the vast majority of emergency evacuations are completed by Helicopter.</p> <p>The Safety Case for the affected assets has been accepted on the basis that the preferred means of evacuation is by helicopter, with lifeboats providing an alternative means of evacuation in case the preferred means are unavailable due to the nature of the event or weather conditions (in compliance with PFEER Reg. 15).</p> <p>As discussed in Issue 3, the proposed development increases reliance on lifeboats as a means of evacuation due to potential unavailability of helicopter travel to leave the installations. Evacuation by lifeboat exposes personnel to significantly higher risks of fatality during an evacuation than evacuation by helicopter from an unimpaired helideck.</p> <p>The increased reliance on lifeboats will in turn increase the potential for the on-scene commander having to resort to means of escape to sea by life rafts in the event of a lifeboat failure to launch, further increasing risks to personnel. The risks associated with escape to sea by life raft are particularly sensitive to sea state and are critically reliant on the success of rescue by the Emergency Response and Rescue Vessel (ERRV) which can be very challenging depending on the sea state and lighting levels.</p> <p>An additional burden on evacuation by lifeboat is created due to the increased potential for ship collisions as discussed in Issue 6. The location of additional obstructions in the form of a windfarm will result in the existing shipping traffic being required to reroute to avoid the windfarm. Rerouting creates an increase in traffic in the locality of the windfarm in addition to additional traffic being produced because of supplying the development.</p>			
Summary of Impact on Affected Assets			
<ol style="list-style-type: none"> Increased dependance on the use of lifeboats for evacuation with a higher risk of injury and fatality during these activities. Increased dependence on higher risk escape to sea facilities due to the lower availability of helicopters and; Increase in potential vessel impact events due to existing traffic being re-routed to avoid the proposed windfarm and additional vessels to service the development. 			

Issue - 6	Safety Case Impact	Impact on performance	Legal / Regulatory compliance issue?
Marine Traffic	Yes	Negative	Yes PFEER Regulation 10
Summary			
The applicant has acknowledged that the installation of a wind farm turbine array creates a hazard by introducing shadow regions and providing moving, reflective surfaces that can defeat the ability of a Radar Early Warning System (REWS) to detect and track targets within the affected area.			
Assessment			
<p>The affected assets are currently exposed to ship collision hazards that could cause significant structural damage with major accident potential. The Safety Case has been accepted based on the:</p> <ul style="list-style-type: none"> • currently documented shipping hazards and corresponding likelihood of impacting affected assets • predicted risk to personnel from these hazards • SECEs and management systems to effectively manage these hazards and reduce risks to ALARP <p>The proposed development will displace current shipping traffic into closer proximity to the affected assets and will introduce an additional volume of shipping traffic required to service the needs of the proposed development. An increase in shipping traffic in the proximity of the affected assets would increase the likelihood of a ship collision event. The ship collision avoidance SECEs and management systems put in place by Spirit would be unable to entirely mitigate this impact – the proposed development would therefore increase the overall likelihood of ship collision and hence risks to personnel on the affected assets.</p> <p>The affected assets are served by a REWS supported by management systems arrangements to monitor nearby shipping traffic, detect a potential ship collision threat and deploy effective emergency response, including evacuation by helicopter. There are many examples across industry where helicopter evacuation has proved an effective emergency response to detected ship collision threats. The proposed development will degrade the current Ship Collision avoidance and response capability of the Morecambe Hub and will increase the likelihood that an errant vessel on a collision course with one of the affected assets will not be identified in sufficient time to take effective evasive action or make a controlled evacuation by helicopter. Any undue delay in the detection of an approaching threat increases risks to personnel – this degradation of Spirit's emergency response capability would therefore increase risks to personnel in a ship collision event.</p> <p>PFEER Regulation 10 requires Spirit to take appropriate measures to detect emergencies for the full range of reasonably foreseeable events which require emergency response, and that these systems should provide sufficient levels of availability and reliability to meet the demands placed on them. The degradation of Spirit's emergency response capability that would be caused by the proposed development would therefore challenge their ability to comply with PFEER Regulation 10.</p>			
Summary of Impact on Affected Assets			
The proposed development will increase risks to personnel on the affected assets by increasing the likelihood of a ship collision, and by degrading Spirit's ability to detect threats within the affected area and take timely emergency response action.			

Issue - 7	Safety Case Impact	Impact on performance	Legal / Regulatory compliance issue?
Execution of Maintenance Plan	Yes	Negative	Yes PFEER Regulation 9, 11, 12, 13, 14, 15, 16, 18, 19 SCR Regulation 9, 28
Summary			
<p>MOWL have acknowledged that their proposed development will reduce the availability of helicopter access to the affected assets. Based on their analysis of helicopter impacts and assumption that Spirit will be able to secure an exception to CAA aviation rules (see Issue 1), they contend that this impact is minor and readily addressed through flexibility and efficiency of Spirit's operational planning. They also contend that there will be no material impact on risks resulting from the helicopter impacts based on their assessment [1] that SECEs 'fail safe', have 'built-in redundancy' and that 'preventative maintenance activities usually only involve inspection and testing and therefore any delay will not result in an increased level of risk'.</p>			
Assessment			
<p>To understand this issue, it is worth reviewing how maintenance activities contribute to the management of major accident risks, and how Spirit operations deliver the Maintenance Plan. The affected assets include four Normally Unattended Installations (NUI). Maintenance interventions for the NUIs are carried out by a team based on CPC, who travel between CPC and the NUI by helicopter. SECEs require regular maintenance and inspection to ensure that they will function on demand when needed and detect any hidden/unrevealed failures. The Maintenance Plan covers a range of activities:</p> <ul style="list-style-type: none"> • Maintenance involving activities designed to repair or preserve condition / function • Inspection to confirm acceptable condition and monitor any deterioration in condition • Testing to confirm acceptable functioning and monitor any deterioration in performance <p>Spirit Energy has implemented a number of management system arrangements for the management of major accident hazards, and reduction of associated risk to ALARP. These arrangements are detailed within the Safety Case for the affected assets and include SECE maintenance, inspection, and testing.</p> <p>There are very few SECEs with built in redundancy and most SECEs do not fail safe – failure can happen at any time i.e., when people are present performing routine maintenance activities. Inspection and testing have a critical role in the management of major accident risk. Without appropriate inspection and testing at the correct intervals, Spirit Energy would be unable to effectively monitor and address any deterioration in SECE condition or performance that could compromise its ability to function when needed. This would increase the likelihood of failure of systems designed to prevent a major accident from occurring (PFEER Reg. 9), and systems designed to mitigate the impacts (PFEER Reg. 10, 12, 13) or provide emergency response / lifesaving facilities (PFEER Reg. 11, 14, 15, 16, 18).</p> <p>SECE degradation can therefore have a very real impact on risk and in the absence of regular inspection and testing, Spirit would be unable to prevent these from adding to the cumulative risk on the asset. An analysis carried out by Spirit Energy has predicted a significant backlog of maintenance that will grow each year throughout the remaining field life since the necessity to operate in daylight hours only (with good visibility) means that there are less hours available to complete the installation maintenance. A reduction in working hours means that there will be a reduction in maintenance able to be completed on each visit. Additional flights will be required to execute the backlog and deal with operational interruptions.</p> <p>Flight restrictions that compromise the ability to execute SECE maintenance therefore have the potential to expose personnel on the affected assets to increased safety risk. Multiple interrelated impairments or unknown SECE condition can present a very unpredictable and complex risk to assess and manage, with the potential to introduce an ever-widening cumulative risk gap that could ultimately become intolerable and necessitate a much more extensive intervention to rectify.</p> <p>Flight restrictions also creates concerns with the ability to schedule specialist vendors to complete specialised tasks as these vendors require to be scheduled some time in advance of work. This issue will in an imposed difficulty for Spirit Energy to maintain plant in an efficient state, in efficient working order and in</p>			

good repair as mandated by Regulation 19 of PFEER and Regulation 9 of SCR15.

It is worthy of note that the impact of the flight restrictions would not be a short-term effect but would endure throughout the remaining operational life of the affected assets, accumulating with each year that passes.

PFEER Reg. 19 requires Spirit to maintain SECEs in an efficient state, in efficient working order and in good repair. SCR Reg. 9 places a similar requirement to ensure SECEs remain in a good state of repair. SCR15 Reg. 8 requires Spirit to include within their Safety Case a description of their safety management systems, including those for maintaining SECEs in accordance with applicable regulations, and SCR Reg. 28 requires Spirit to comply with their Safety Case. The predicted growing backlog of maintenance and correspond increase in risks to personnel on the affected assets is likely to expose Spirit to regulatory enforcement action under these regulations.

Summary of Impact on Affected Assets

The restrictions which will be placed upon Spirit Energy operations as a result of changes to helicopter operations will seriously curtail the ability of Spirit Energy to maintain their plant in a safe condition, and would therefore lead to increased risks to personnel and increased risk of regulatory enforcement action for the organisation.

Issue - 8	Safety Case impact	Impact on performance	Legal / Regulatory compliance issue?
Safety Case - Tolerability of risk	Yes	Negative	Yes PFEER Reg. 5; SCR Reg. 16 HSE - Reducing Risk, Protecting People
Summary			
MOWL have proposed a 1.5 nautical mile buffer zone between the nearest helidecks on Calder and CPC and the windfarm boundary. They contend that their proposed development results in a minimal, non-material, change to risk exposure to the MH personnel working on the affected assets.			
Assessment			
<p>The impact of the MOWL development has been qualitatively assessed against current Spirit Energy operations applying industry-standard knowledge and guidance for the assessment of risk in terms of how different factors affect risk exposure to a workforce. Personnel working on the affected assets are currently exposed to risks from potential major accidents. The risk exposure from these events can be impacted by increasing the likelihood for these events to occur, and / or by increasing the potential for them to result in harmful impacts as follows:</p> <ul style="list-style-type: none"> Hydrocarbon Fire / Explosion <p>As discussed in Issue 7 – Execution of Maintenance Plan, flight restrictions will seriously curtail the ability of Spirit Energy to maintain their plant in a safe condition, thereby increasing the likelihood of failure of systems designed to prevent a major accident from occurring, and systems designed to mitigate the impacts or provide emergency response / lifesaving facilities. The effect on risk is therefore two-fold, increasing the likelihood of a major accident event and increasing the potential consequences by reducing the protection available from degraded systems.</p> <ul style="list-style-type: none"> Helicopter Crash <p>Helicopter transport is an inherently hazardous activity and rightly recognised within the industry as having major accident potential. Anything which increases the exposure to this hazard, increases the risks to the exposed workforce. As discussed in Issue 2 – Aviation Operations and in Issue 7 – Execution of Maintenance Plan, the proposed development will restrict Spirit's helicopter access to the affected assets daylight and good visibility conditions only, thereby significantly increasing the in-field transportation risk to the NUI interventions team by requiring more interventions to execute the maintenance plan.</p> <p>The proximity of the windfarm compounds the risk from helicopter transportation for all worker groups by the increase on pilot workload and randomly changing power requirements introduced by velocity deficit and turbulent air effects. In addition, the distances needed to achieve a safe departure in the event of engine failure are significantly larger than the proposed 1.5 nm buffer zone.</p> <ul style="list-style-type: none"> Ship Collision <p>As discussed in Issue 6 – Marine Traffic, the proposed development will increase risks to personnel on the affected assets by increasing the likelihood of a ship collision, and by degrading Spirit's ability to detect threats within the affected area and take timely emergency response action.</p> <p>PFEER Reg.5 and SCR15 Reg.16 requires Spirit Energy to assess and reduce to ALARP risk to personnel from major accident hazards. The multiple impacts identified will cumulatively increase risks to personnel working on affected assets to such an extent that it will be challenging to meet the requirements of the Regulations.</p>			

Summary of Impact on Affected Assets

Overall, the cumulative effect of the increase in risk associated with Fire & Explosions (as a result of poorer SECE condition); Helicopter Operations (as a result of pilot workload and increase reliance on lifeboats); and Ship Collision (as a result of marine traffic diversions around the affected assets) means that a Material Change to the Safety Case is required.

Issue - 9	Safety Case impact	Impact on performance	Legal / Regulatory compliance issue?
Safety Case	Yes	Not Applicable	Yes
			SCR15 Regulation 24
Summary			
MOWL has concluded that their development will result in minor impacts only to the Safety Case for the affected assets and that a Material Change submission will not be required.			
Assessment			
<p>A Safety Case for the affected assets has been prepared and accepted by the Regulator in accordance with Regulation 17 of SCR15 [3]. Regulation 24 of SCR15 requires operators to submit a revision where proposed changes to the current safety case are '<i>material</i>', and guidance is provided on what constitutes a material change [3, 4, 5].</p> <p>To reach a decision on the requirement for a material change Spirit needs to consider whether the proposed development:</p> <ul style="list-style-type: none"> Changes the basis on which the original Safety Case was accepted, including the basis on which risk control decisions are made or which necessitate a review of the adequacy of major hazard control measures; this includes both physical modifications and operational management changes of sufficient significance [2] Introduces multiple cumulative impacts that have the potential to affect the major accident risks or their controls, either directly or indirectly <p>The impact of the MOWL development has been assessed against available industry guidance [3, 4, 5] and concludes that the assertion by MOWL that the development does not impact the Safety Case materially is incorrect on the following grounds:</p> <p>The MOWL conclusion that no Safety Case Material Change is required is based on a narrow definition of a helicopter risk metric. The metric is based on the number of historical industry accidents and calculates the new installation risk based on the number and duration of flights taken during normal operations. No account is taken for the placement of a windfarm in close proximity to the flightpath to and from the Morecambe Hub assets, nor the hazards that would be imposed to helicopter transport by air turbulence from the development. The Civil Aviation Authority notes in document CAP 764 that windfarms '<i>threaten the integrity of offshore installation Safety Cases where emergency procedures are predicated on the use of helicopters to evacuate the installation</i>'.</p> <p>The MOWL development will introduce multiple impacts that increase risk to personnel on affected assets and require several changes to the way that Spirit Energy will operate the asset. cumulatively these result in a requirement to submit a Safety Case Material Change. The number and scope of changes required present a situation that the basis on which the Safety Case has been accepted will alter should the windfarm proceed as proposed. See detailed discussion for Issues 1-8.</p>			
Summary of Impact on Affected Assets			
The proposed development will put Spirit Energy in the position of having to submit a Material Change which they do not support, and which would result in the viability of the continued safe operation of the affected assets being threatened.			